



DONALD L. WOLFE, Director

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

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IN REPLY PLEASE
REFER TO FILE: **W-0**

May 25, 2006

The Honorable Board of Supervisors
County of Los Angeles
383 Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles, CA 90012

Dear Supervisors:

**LOS ANGELES COUNTY WATERWORKS DISTRICT NO. 40, ANTELOPE VALLEY
ANNEXATION 40-63 (4-133)
SUPERVISORIAL DISTRICT 5
3 VOTES**

**IT IS RECOMMENDED THAT YOUR BOARD ACTING AS THE GOVERNING BODY
OF THE LOS ANGELES COUNTY WATERWORKS DISTRICT NO. 40,
ANTELOPE VALLEY:**

1. Consider the Environmental Impact Report certified by the Eastside Union School District (Exhibit C) on May 5, 2005, together with the environmental findings contained therein; and certify that you have independently considered and reached your own conclusions regarding the environmental effects of the proposed project and have determined that the Environmental Impact Report and environmental findings adequately address the environmental impacts of the proposed annexation.
2. Adopt the enclosed Resolution of Application to Initiate Proceedings for the annexation of the property located at the southwest corner of Avenue J-4 and 27th Street East in the City of Lancaster, designated as Annexation 40-63 (4-133), into Los Angeles County Waterworks District No. 40, Antelope Valley (District).

3. Approve and authorize the Director of Public Works to file with the Local Agency Formation Commission (LAFCO) the required application for the proposed annexation to the District and to take any other steps necessary to assist LAFCO in processing the application.
4. Adopt the enclosed Resolution approving and accepting the negotiated exchange of property tax revenue resulting from Annexation 40-63 (4-133).
5. Find that Annexation 40-63 (4-133) to the District will have no adverse effect on wildlife resources and authorize the Director of Public Works to complete and file a Certificate of Fee Exemption for the project.

PURPOSE/JUSTIFICATION OF RECOMMENDED ACTION

This recommended action is for your Board to adopt the enclosed Resolution requesting LAFCO to initiate proceedings for the annexation of territory described and shown on the enclosed Exhibits A and B, respectively, into the District. The owners of the territory proposed to be annexed requested water service from the District. However, the territory is not currently within the boundaries of the District and requires annexation into the District before water service can be provided.

LAFCO requires a Board-adopted Resolution to initiate proceedings for such a change of organization and the filing of an application.

This recommended action is also for your Board to adopt the enclosed Resolution approving and accepting the negotiated exchange of property tax revenue resulting from Annexation 40-63 (4-133), approximately 10.18 acres of vacant land in the City of Lancaster, to the District.

Implementation of Strategic Plan Goals

This action meets the County Strategic Plan Goal of Organizational Effectiveness as it will provide effective and efficient delivery of water to future customers within the annexed area.

FISCAL IMPACT/FINANCING

New revenue will be generated in the form of standby charges paid by the property owners to the District for operation and maintenance of the water system and capital improvement projects.

The property owners requesting the proposed annexation will pay all required fees associated with this project.

A portion of the annual property tax increment from the affected taxing entities will be transferred to the District.

This action will have no impact on the County's General Fund.

FACTS AND PROVISIONS/LEGAL REQUIREMENTS

The boundary of the proposed annexation has been reviewed and approved by Public Works and the County Assessor. The enclosed Resolution requesting LAFCO to initiate proceedings for the change of organization has been approved by County Counsel as to form. A copy of the diagram showing the boundary of the annexation territory is included with the Resolution (see Exhibit B).

ENVIRONMENTAL DOCUMENTATION

The Eastside Union School District, in its role as lead agency in matters pertaining to compliance with the California Environmental Quality Act, has certified the Environmental Impact Report and certain findings contained therein with respect to the environmental effects of the proposed annexation. In its role as a responsible agency, your Board must independently consider the environmental document prepared by the lead agency and reach your own conclusions regarding the environmental effects of the proposed annexation. After having done so, it is recommended that your Board determine that the Environmental Impact Report and environmental findings adequately address the environmental impacts of the proposed annexation.

IMPACT ON CURRENT SERVICES (OR PROJECTS)

There will be no negative impact on current County services or projects during the performance of the recommended services.

The Honorable Board of Supervisors
May 25, 2006
Page 4

CONCLUSION

Please return one adopted copy of this letter and the signed Resolution to Public Works, Waterworks and Sewer Maintenance Division, for submittal to LAFCO, and forward one adopted copy of the letter and Resolution to the County Assessor.

Respectfully submitted,

DONALD L. WOLFE
Director of Public Works

MR:lm
BDL2232

Enc.

cc: Chief Administrative Office
County Assessor
County Counsel

RESOLUTION OF APPLICATION TO INITIATE PROCEEDINGS BY THE
LOS ANGELES COUNTY WATERWORKS DISTRICT NO. 40, ANTELOPE VALLEY,
REQUESTING THE LOCAL AGENCY FORMATION COMMISSION TO
INITIATE PROCEEDINGS FOR THE ANNEXATION OF TERRITORY DESIGNATED
AS ANNEXATION 40-63 (4-133)

WHEREAS, the Los Angeles County Waterworks District No. 40, Antelope Valley (District), desires to initiate proceedings pursuant to the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000, commencing with Section 56000 of the California Government Code, for a change of organization that would annex territory to the District; and

WHEREAS, this annexation is being proposed based upon a petition filed by the property owner requesting said annexation; and

WHEREAS, the territory proposed to be annexed is uninhabited; and

WHEREAS, the boundaries of the proposed area are described in Exhibit A, and depicted on the corresponding map in Exhibit B, which by this reference are incorporated herein; and

WHEREAS, on May 5, 2005, the Eastside Union School District, in its role as lead agency in matters pertaining to compliance with the California Environmental Quality Act, certified the Environmental Impact Report and certain findings with respect to the environmental effects of the proposed project; and

WHEREAS, this proposal involves a single consenting landowner and boundary change to the District as the affected local agency, and therefore, meets the criteria for waiver of protest proceedings as set forth in Government Code Section 56663(c).

NOW, THEREFORE, BE IT RESOLVED by the Board of Supervisors of the County of Los Angeles, acting as the governing body of the District, that:

1. The Board of Supervisors, in its role as a responsible agency under the California Environmental Quality Act, has considered the Environmental Impact Report certified by the Eastside Union School District on May 5, 2005, together with the environmental findings contained therein; and hereby certifies that it has independently considered and reached its own conclusions regarding the environmental effects of the proposed project and has determined that the Environmental Impact Report and the environmental findings adequately address the environmental impacts of the proposed annexation.

2. Application and a proposal is hereby made to the Local Agency Formation Commission of Los Angeles County for a change of organization as follows:
 - a. This proposal is made pursuant to the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 commencing with Section 56000, Government Code, State of California.
 - b. The nature of the proposed change of organization is the annexation of the territory to the District.
 - c. The territory proposed to be annexed is uninhabited and its boundaries are described in Exhibits A and B attached hereto.
 - d. It is desired that the proposed annexation provide for and be made subject to the following terms and conditions:
 - i. The annexed territory shall be subject to the payment of such service charges, assessments, or taxes as the District may legally impose.
 - ii. The Board of Supervisors shall be the governing body of the District.
 - iii. Any taxes, fees, charges, or assessments for the District may be collected by the County of Los Angeles Treasurer and Tax Collector in the same manner as ad valorem property taxes or as otherwise allowed by law.
 - e. The reason for this proposal is as follows:
 - i. The owners of the territory proposed to be annexed request water service from the District. However, the territory is not currently within the boundaries of the District and requires annexation into the District before water service can be provided.
3. This Resolution of Application to Initiate Proceedings is hereby adopted and approved by the Board of Supervisors, and the Local Agency Formation Commission of Los Angeles County is hereby requested to initiate proceedings for the annexation of territory as authorized and in the manner provided by the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000, and the District hereby consents to the waiver of protest proceedings in accordance with Section 56663(c) of the Government Code.

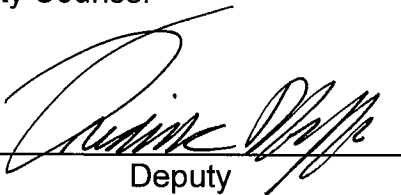
The foregoing Resolution was adopted on the _____ day of _____, 2006,
by the Board of Supervisors of the County of Los Angeles as the governing body of the
Los Angeles County Waterworks District No. 40, Antelope Valley.

SACHI A. HAMAI
Executive Officer of the
Board of Supervisors of the
County of Los Angeles

By _____
Deputy

APPROVED AS TO FORM:

RAYMOND G. FORTNER, JR.
County Counsel

By 
Deputy

RESOLUTION OF
THE BOARD OF SUPERVISORS OF THE COUNTY OF LOS ANGELES
APPROVING AND ACCEPTING THE NEGOTIATED EXCHANGE OF PROPERTY
TAX REVENUE RESULTING FROM ANNEXATION 40-63 (4-133) TO
LOS ANGELES COUNTY WATERWORKS DISTRICT NO. 40, ANTELOPE VALLEY,

WHEREAS, pursuant to Section 99 of the Revenue and Taxation Code, for specified jurisdictional changes, the governing bodies of affected local agencies shall negotiate and determine the amount of property tax revenue to be exchanged between the affected agencies; and

WHEREAS, the Board of Supervisors of the County of Los Angeles is the governing body of the County of Los Angeles and Los Angeles County Waterworks District No. 40, Antelope Valley (District); and, therefore, must determine the appropriate amount of property tax to transfer on behalf of each agency; and

NOW, THEREFORE, BE IT RESOLVED, as follows:

1. The negotiated exchange of property tax revenues resulting from Annexation 40-63 (4-133) to the District is approved and accepted.
2. No property tax transfer shall take place as a result of Annexation 40-63 (4-133) to the District.
3. No transfer of property tax revenue shall be made to or from any other taxing entities as a result of Annexation 40-63 (4-133) to the District.

The foregoing Resolution was adopted on the _____ day of _____, 2006
by the Board of Supervisors of the County of Los Angeles as the governing body of the
Los Angeles County Waterworks District No. 40, Antelope Valley.

SACHI A. HAMAI
Executive Officer of the
Board of Supervisors of the
County of Los Angeles

By _____
Deputy

APPROVED AS TO FORM:

RAYMOND G. FORTNER, JR.
County Counsel

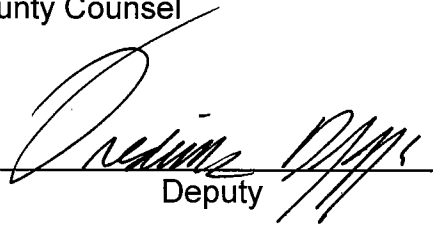
By  Deputy

EXHIBIT "A"

LEGAL DESCRIPTION
ANNEXATION 40-63(4-133)
LOS ANGELES COUNTY WATERWORKS
DISTRICT NO. 40, ANTELOPE VALLEY
REGION 4, LANCASTER

BEGINNING AT THE NORTHEAST CORNER OF THE SOUTHWEST QUARTER OF THE
NORTHEAST QUARTER OF SECTION 19, TOWNSHIP 7 NORTH, RANGE 11 WEST,
SAN BERNARDINO BASE AND MERIDIAN; THENCE;

- L1 SOUTHERLY, ALONG THE EASTERLY LINE OF SAID SOUTHWEST QUARTER
OF THE NORTHEAST QUARTER OF SECTION 19, SOUTH 00°23'55" EAST,
830.73 FEET, THENCE;
- L2 SOUTH 88°58'27" WEST, 666.48 FEET, THENCE;
- L3 NORTH 00°23'27" WEST, 829.83 FEET, THENCE;
- L4 NORTH 88°53'49" EAST, 666.38 FEET TO THE POINT OF BEGINNING.

CONTAINING 12.7 ACRES.

END OF DESCRIPTION



CHARLES J. BECK
RCE 19289
EXPIRATION DATE 9/30/2007

DATE: JANUARY 23, 2006

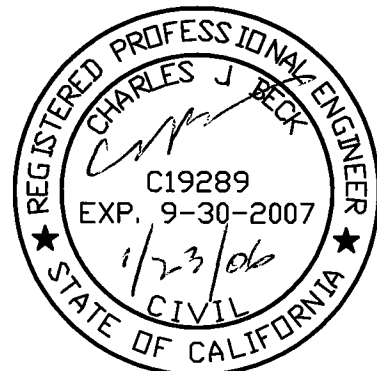
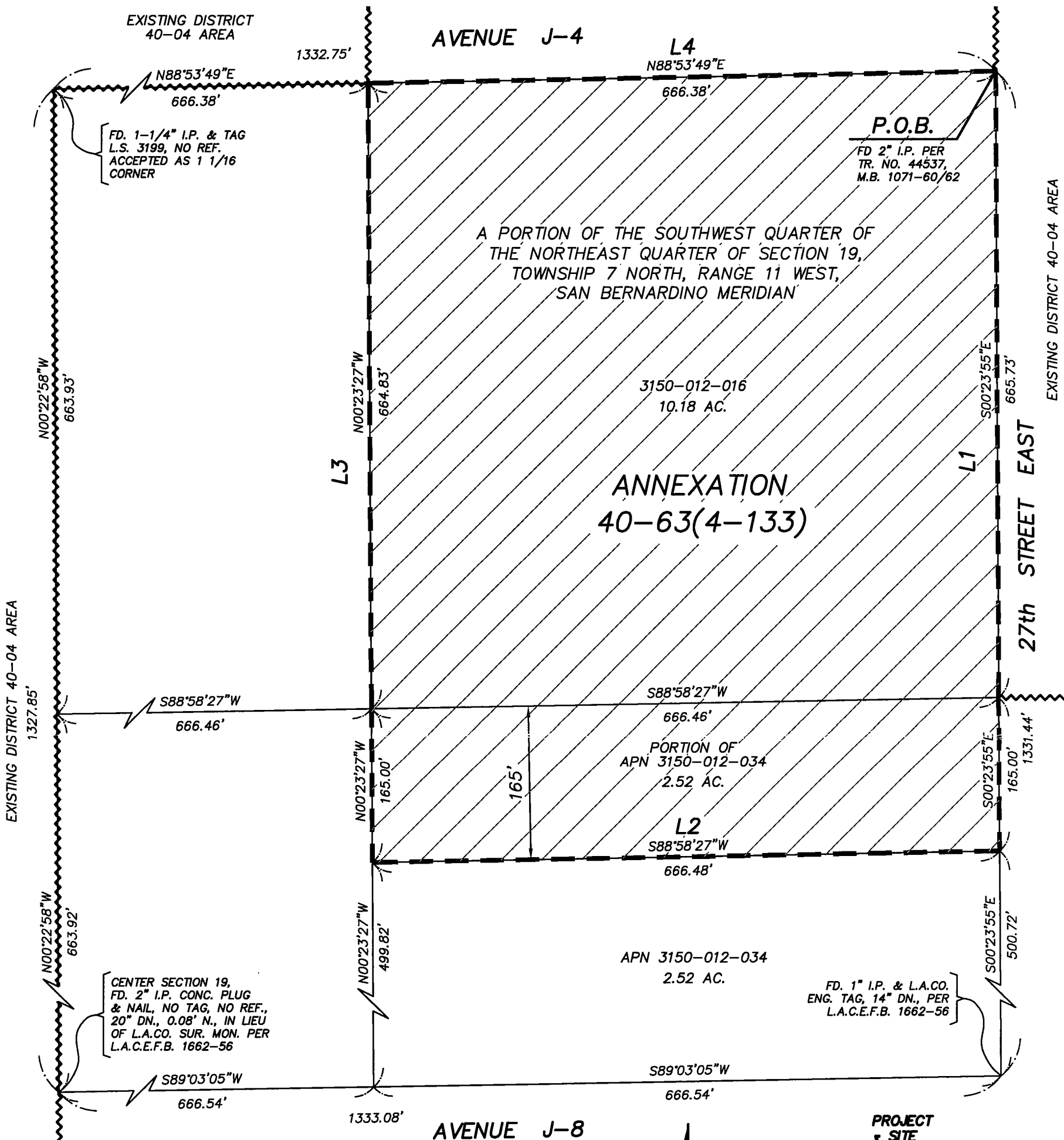


EXHIBIT "B"

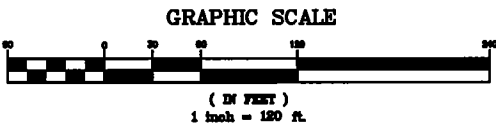
ANNEXATION 40-63(4-133)
LOS ANGELES COUNTY WATERWORKS
DISTRICT NO. 40, ANTELOPE VALLEY
REGION 4, LANCASTER



CONTAINING 12.7 ACRES
ANNEXATION MAP
SCALE: 1" = 120'

LEGEND

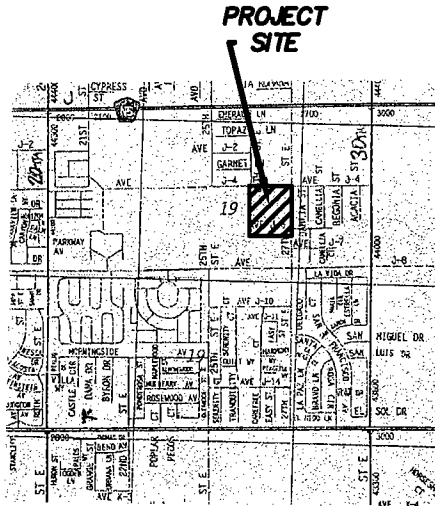
- BOUNDARY OF PROPOSED ANNEXATION
- ~~~~~ EXISTING DISTRICT 40-04 BOUNDARY



LINE TABLE		
COURSE	BEARING	DISTANCE
L1	S 00°23'55" E	830.72'
L2	S 88°58'27" W	666.48'
L3	N 00°23'27" W	829.82'
L4	N 88°53'49" E	666.38'

BASIS OF BEARINGS:

THE BEARINGS SHOWN HEREON ARE BASED ON THE BEARING OF NORTH 89°03'05" EAST BEING THE CENTERLINE OF AVENUE J-8 AS SHOWN ON TRACT MAP NO. 42682, MAP BOOK 1129, PAGE 21-22, O.R.



VICINITY MAP
NO SCALE

PLANS PREPARED BY:



129 WEST PONDERA STREET
LANCASTER, CA. 93534
(661) 948-0805

SHEET TITLE

ANNEXATION 40-63(4-133)
ANNEXATION MAP
AND VICINITY MAP

PROJECT

ANNEXATION 40-63(4-133)
L.A. CO. WATERWORKS
DISTRICT NO. 40, ANTELOPE VALLEY
REGION 4, LANCASTER

OWNER

EASTSIDE UNION
SCHOOL DISTRICT
45006 N. 30th ST. EAST
LANCASTER, CA. 93535
(661) 952-1200

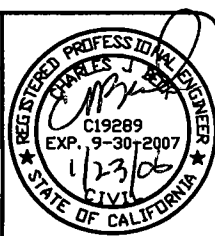


EXHIBIT “C”

ANNEXATION 40-63(4-133)

(ENVIRONMENTAL IMPACT REPORT)

Final
Environmental Impact Report

Columbia Elementary School

Eastside Union School District

State Clearinghouse No. 2004081081

May 2005

HDR | ONE COMPANY
Many Solutions™

Final
Environmental Impact Report

Columbia Elementary School

Eastside Union School District

State Clearinghouse No. 2004081081

May 2005

Lead Agency:
Eastside Union School District
45006 North 30th Street East
Lancaster, CA 93535

Consultant to Lead Agency:
HDR Engineering, Inc.
251 South Lake Avenue, Suite 1000
Pasadena, CA 91101

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Executive Summary

This Environmental Impact Report (EIR) has been prepared in accordance with the California Environmental Quality Act (CEQA) of 1970 (Public Resources Code, Section 21000 et. seq.) and the CEQA Guidelines (California Code of Regulations, Section 15000 et seq.) to analyze the potential significant impacts associated with the proposed Columbia Elementary School project.

This document is a Final EIR (FEIR) that contains comments and responses to comments received during the public review period for the Draft EIR. The comments and responses to comments are included in section 7.0 of the FEIR, beginning on page 67. Revisions to the EIR in responses to comments and information received are identified by **shading** the revised text, as illustrated in this sentence.

The Project

The Eastside Union School District (EUSD or the District) proposes to construct and operate a new elementary school in Lancaster to serve approximately 850 students.

Project Objectives

The Eastside Union School District (EUSD) currently operates three elementary schools and one middle school serving nearly 3,000 students in grades K through 8, and a new elementary school is needed to accommodate the educational needs of the rapidly growing population in the east Lancaster area. The primary objectives of the project are to:

- Serve the east Lancaster area by providing needed facilities to adequately accommodate the educational needs of Lancaster area residents.
- Provide an elementary school facility that includes all needed permanent academic, recreational, administrative, and parking facilities to comprehensively serve the students.
- Provide for school development in a time-efficient manner.

Project Location and Surrounding Uses

The school will be located at the intersection of East Avenue J-4 and 27th Street East, in a rapidly growing area of east Lancaster. The site encompasses approximately 12.5 acres of vacant land. Undeveloped vacant land surrounds the site to the north, west, and south. No residential uses adjoin the site. The closest residential uses are single family homes to the east of the site, across 27th Street East. The only other existing residential uses currently in the vicinity are located farther away to the northwest of the site, across Avenue J-4, but a new residential development is being constructed nearby at the northeast corner of 27th Street East and Avenue J-4 and extending to 30th Street East and Avenue J. The construction of that development is anticipated to be completed by the end of summer 2005.

Project Characteristics

The elementary school will serve students in the K through 6th grades. The campus will accommodate approximately 850 students and 35 staff. The conceptual site plan locates classrooms and administrative facilities in one- and two-story buildings and a kindergarten play yard on the northern portion of the site. The southern portion of the site will be used for grass play fields and hard court play areas with 2 baseball fields and 3 basketball courts. Two parking lots on the site will provide parking for faculty, staff, and visitors. Main access to the school will be provided from Avenue J-4, via two one-way driveways (in and out). The parents' drop-off area and a visitor parking will be accessed at this location. A secondary access will be provided off 27th Street East via two one-way driveways (in and out). A bus drop-off area and staff parking lot will be accessed at this location.

The project also include construction of infrastructure improvements to serve the school, including potable water, drainage, sewer, and roadway improvements including the segment of Avenue J-4 between 26th Street East and 27th Street East adjacent to the project site

Environmental Impact

The Eastside Union School District prepared this EIR to analyze the potentially significant environmental impacts associated with the construction and long-term operations of the Columbia Elementary School. In addition, the EIR identifies mitigation measures capable of avoiding or substantially reducing impacts. A summary of the environmental impacts, mitigation measures, and level of impact remaining after mitigation is presented in Table ES-1 at the end of this Executive Summary.

The analysis contained in this EIR uses the words "significant" and "less than significant" in the discussion of impact. These words specifically define the degree of impact and parallel language used in the CEQA Guidelines. As required by CEQA, mitigation measures have been identified in this EIR to avoid or substantially reduce the level of identified potentially significant impacts. Certain significant impacts, even with the inclusion of mitigation measures, cannot be reduced to a level below significance. Such impacts are identified as "unavoidable significant impacts."

Unavoidable Significant Impacts

CEQA defines a significant impact on the environment as "a substantial, or potentially substantial, adverse change in any of the physical conditions within an area affected by the project, including land, air, water, flora, fauna, ambient noise, and objects of historic or aesthetic significance." In order to approve a project with unavoidable significant impact, the lead agency (Eastside Union School District) must adopt a Statement of Overriding Considerations. In adopting such a statement, the lead agency finds that it has reviewed the EIR, has balanced the benefits of the project against its unavoidable significant effects, and has concluded that the benefits of the project outweigh the unavoidable adverse environmental effects, and thus, the adverse environmental effects may be considered "acceptable" (CEQA Guidelines, Section 15093[a]).

The EIR identifies the following potentially unavoidable significant impacts associated with the construction and operation of the Columbia Elementary School project:

- Short-term project-specific and cumulative noise and air quality impacts from construction of the school facilities and related improvements
- Contribution to long-term cumulative air quality impact from vehicular emissions

Potentially Significant Impacts That Can Be Mitigated

The EIR identifies the following potential significant impacts associated with the Columbia Elementary School that can be mitigated:

- Addition of project traffic to the intersections of 26th Street East/Avenue J and 30th Street East/Avenue J-4
- Potential to affect native or migratory birds by construction activity

Less Than Significant Impacts

The analysis in the EIR and the Initial Study prepared for Columbia Elementary School found that the project will result in either no impact or in a less than significant impact with regard to:

- | | |
|---|--|
| ▪ Aesthetics | ▪ Land use and planning |
| ▪ Agriculture resources | ▪ Mineral resources |
| ▪ Biological resources (other than native or migratory birds) | ▪ Noise (other than during construction) |
| ▪ Cultural resources | ▪ Population and housing |
| ▪ Geology and soils | ▪ Public services and utility systems |
| ▪ Hazards and hazardous materials | ▪ Recreation |
| ▪ Hydrology and water quality | |

Beneficial Impacts

The EIR identifies the following project effects that are beneficial:

- Provision of a necessary and essential public school facility in the east Lancaster growth area to help accommodate the rapidly growing resident student population.
- Provision of an elementary school in a time-efficient manner.
- Development of underutilized and vacant site with a modern public school facility.

Alternatives to the Project

The following alternatives to the project are examined in this EIR: (1) "No Project" alternative required by CEQA, (2) Smaller Project, and (3) Alternative Location alternative. None of the alternatives discussed is considered environmentally superior to the project. Each alternative results in potential impacts, and while some impacts may be greater and some lesser than those of the project, overall, other alternatives are either environmentally comparable or inferior to the project.

Areas of Controversy and Issues to be Resolved

Through the Notice of Preparation process, the public agencies raised the following issues that are addressed in the EIR as follows:

- Utilities (addressed in Section 3.8 of the EIR)
- Public services (addressed in Sections 3.7 of the EIR)

Mitigation Monitoring Program

In accordance with Section 21081.6 of CEQA, a mitigation monitoring program will be adopted by the EUSD if the project is approved. The mitigation monitoring program will be prepared as a separate document and will be designed to ensure compliance with adopted mitigation measures contained in the Final EIR. The program will be available for public review prior to the EUSD Board actions on project approval.

Summary of Impacts

Table ES-1 on the following page summarizes the environmental effects associated with the Columbia Elementary School project, the mitigation measures required to avoid or minimize impact, and the level of impact remaining after full implementation of identified mitigation measures.

TABLE ES - 1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

	POTENTIAL ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF IMPACT AFTER MITIGATION
UNAVOIDABLE SIGNIFICANT ENVIRONMENTAL IMPACTS (Lead Agency must have "Statement of Overriding Considerations" under section 15093 and 15124(b) of the State CEQA Guidelines if the Agency determines these effects are significant and approves the project.)			
Air Quality - Construction	The construction of Columbia Elementary School will individually and cumulatively result in peak emissions of oxides of nitrogen (NOx) from construction equipment and activities above the SCAQMD threshold amount.	<p>The District will implement the following mitigation measures to protect the nearby residential uses though conditions imposed on the construction contractor.</p> <p>The contractor shall ensure that:</p> <ol style="list-style-type: none"> 1. Exposed surfaces are watered three times a day 2. Soils stabilizers are applied to disturbed inactive areas 3. Ground cover is replaced quickly in inactive areas 4. All stockpiles are covered with tarps or plastic sheeting 5. All unpaved haul roads are watered 3 times daily 6. Speed on unpaved roads is reduced to below 15 miles per hour 7. Trucks carrying contents subject to airborne dispersal are covered 8. Grading and other high-dust activities cease during high wind conditions (wind speeds exceeding a sustained rate of 25 miles an hour) 9. Diesel particulate filters are installed on diesel equipment and trucks 10. To reduce emissions from idling, the contractor shall ensure that all equipment and vehicles not in use for more than 5 minutes are turned off. 	Significant

Air Quality – Operational	While the project emissions from vehicular traffic and school operations will be below the AVAQMD thresholds, the project will contribute to overall cumulative emissions in the Mojave Air Basin.	The project is an essential public school facility that serves an on-going residential development in Lancaster; does not induce population growth and is consistent with the regional Air Quality Management Plan. Implementation of local and regional plans, policies, and programs will reduce cumulative emissions in the Mojave Air Basin, but not below the AVAQMD's daily threshold amounts.	Significant, consistent with regional Air Quality Management Plan
Noise - Construction	Construction of the school and related improvements will individually and cumulatively generate short-term intermittent noise in the area where there are residential uses nearby.	In addition to compliance with the City of Lancaster regulation that limits noise-generating construction activities to weekdays and Saturdays between sunrise and 8 PM, and prohibits construction on Sundays, the District will implement the following mitigation measures though conditions imposed on the construction contractor: <ol style="list-style-type: none"> 1. The contractor shall ensure that each piece of operating equipment is in good working condition and that noise suppression features, such as engine mufflers and enclosures are working and fitted properly. 2. The contractor shall locate noisy construction equipment as far as possible from residential areas. 3. The contractor shall route construction-related traffic away from residential areas, to the extent possible. 	Significant
SIGNIFICANT ENVIRONMENTAL IMPACTS THAT CAN BE AVOIDED OR MITIGATED (Section 15126.3 of the State CEQA Guidelines)			
Traffic and Circulation	Addition of project-related traffic to area roadways will result in a significant impact on level of service at intersection of 26 th Street East/Avenue J and 30 th Street East/Avenue J-4	In addition to roadway improvements that will be provided as part of the school development, the following additional improvements shall be provided: <ul style="list-style-type: none"> • 26th Street East/ East Avenue J: <ol style="list-style-type: none"> 1. Signalization • 30th Street East/East Avenue J-4: <ol style="list-style-type: none"> 2. Signalization 	Less than significant. Both intersections will operate at level of service A in both AM and PM peak hours. This represents an improvement over the existing level of service at these locations.

Biological Resources – migratory and native birds	While the project will result in no significant impact on biological resources as the only native wildlife species possibly residing on the site during the breeding season is the desert horned lark, to ensure that the project's construction will not affect native or migratory birds, mitigation has been included.	To ensure that no native or migratory birds will be affected the following mitigation measure will be implemented: 1. Clearing and construction activities will avoided during the breeding season between March 15 and August 1, to the extent feasible. If clearing and construction activity cannot be accomplished outside the breeding season, a pre-construction survey by a qualified biologist shall be conducted no sooner than three days prior to the start of the activities to ensure that no active occupied nests are present on the site. If active occupied nests are present, consultations shall be initiated with the Department of Fish and Game to determine the course of action, and the determined course of action shall be implemented.	Less than significant
Construction Solid Waste	The project site is undeveloped land and no demolition of structures, which creates demolition debris, will occur. Construction of the school facilities and associated infrastructure improvements may generate construction materials waste. Even though the proposed school is a relatively small project that does not involve massive construction activities that could generate significant amounts of solid waste, mitigation has been identified to reduce this impact.	1. Construction inert materials, including vegetative matter, asphalt, concrete, and other recyclable materials will be recycled to the extent feasible.	Less than significant
IMPACT CONSIDERED NOT FOUND TO BE LESS THAN SIGNIFICANT (Section 15.14.8 of the CEQA Guidelines)			
Biological Resources – all other factors	The project site is currently vacant land where past grading and/or agricultural activities completely leveled the land surface, and removed all natural vegetation. The elementary school development at the site will not adversely impact any established natural, native wildlife habitat resource values, unique vegetation formations or communities. There will be no loss of native plants and no significant disturbance to native wildlife resources. No agency-	Impact will be less than significant and no mitigation is required.	Less than significant

	listed sensitive plant or animal species are known or expected to occur on the site in a resource dependent, resident, or seasonal breeding basis, and the property overall does not lie within any identifiable wildlife migration, movement or habitat linkage zone.		
Cultural Resources	The project site soils were disturbed by past activities. The record search indicates that no historic or archaeological resources are known to be located on the site or in the site's vicinity.	Impact will be less than significant and no mitigation is required	Less than significant
Noise – Operational	The noise analysis shows that noise generation due to the operations and use of the elementary school will not cause the area noise levels to exceed the 65 CNEL in the nearby residential areas.	Impact will be less than significant and no mitigation is required.	Less than significant
Water Quality	The project construction will proceed in compliance with all applicable regulations, including NPDES regulations, and the District will implement a Storm Water Pollution Prevention Plan (SWPPP) to ensure that water quality standards or waste discharge requirements are not exceeded	Impact will be less than significant and no additional mitigation, beyond compliance with existing regulations, is required	Less than significant
Public Services and Utilities	The project provides all necessary and required utility infrastructure improvements and safety features and will not result in a need to construct new or altered public service or utility facilities whose construction would result in significant environmental impacts.	Impact will be less than significant and no mitigation is required beyond compliance with existing requirements, including the payment of the existing water quality charges, and a new water supply reliability charge pursuant to the County ordinance establishing the charge.	Less than significant
Land Use and Planning	The project will neither divide an established community nor conflict with land use plans since in accord with State law the District plans to exempt itself from local land use regulations to ensure the provision of an elementary school necessary to serve existing and future residential development in east Lancaster.	Impact will be less than significant and no mitigation is required	Less than significant

1.0 Introduction

Purpose of the EIR

This Final Environmental Impact Report (FEIR) has been prepared to evaluate the environmental effects associated with the construction and operation of Columbia Elementary School. The elementary school constitutes a project for the purposes of the California Environmental Quality Act (CEQA) and the State CEQA Guidelines.

According to the *Guidelines for Implementation of the California Environmental Quality Act*, an "EIR is an informational document which will inform public agencies, decision makers, and the public generally of the significant environmental effects of a project on the environment, identify possible ways to minimize the significant effects, and describe alternatives to the project." This EIR is an informational document to be used by decision makers, public agencies, and the general public. It is not a policy document of the Eastside Union School District (EUSD).

The EIR will be used by the EUSD in assessing impacts of the project. If the project is approved, feasible mitigation measures identified in the EIR will be applied to the project during its implementation.

Legal Requirements

This EIR has been prepared in accordance with the California Environmental Quality Act of 1970 (Public Resources Code, Section 21000 et seq.) and the *Guidelines for Implementation of the California Environmental Quality Act* (CEQA Guidelines) published by the Public Resources Agency of the State of California (California Code of Regulations, Title 14, Section 15000 et seq.), and in accordance with CEQA Guidelines. The EUSD is the lead agency for this EIR as defined in Section 21067 of CEQA.

Pursuant to CEQA and the CEQA Guidelines, an Initial Study was prepared for this project. The Initial Study concluded that the project might have a significant effect on the environment. The Initial Study checklist is included in Appendix A of this EIR. A Notice of Preparation (NOP) for this EIR was issued by the EUSD in August of 2004 in accordance with the requirements of the California Code of Regulations, Title 14, Sections 15082(a), 15103, 15375. The NOP indicated that an EIR was being prepared and invited comments on the project from public agencies and the general public.

This EIR was prepared by environmental planning consultants under contract to the EUSD and under the direction of District staff. All information, analysis, and conclusions contained in this document reflect the independent review and judgment of the EUSD.

Scope of the Project

The project is the construction and operation of Columbia Elementary School in Lancaster that will accommodate approximately 850 students.

Scope of the Environmental Analysis

Pursuant to CEQA and the CEQA Guidelines, an Initial Study was prepared for this project. The Initial Study concluded that the proposed Columbia Elementary School would not result in a significant effect on the following environmental factors:

- Aesthetics
- Agricultural Resources
- Geology/Soils
- Mineral Resources
- Population/Housing
- Recreation

The following environmental issues where the proposed project might have a significant effect on the environment are analyzed in this EIR:

- Air quality
- Biological Resources
- Hydrology / Water Quality
- Hazards & Hazardous Materials
- Cumulative Effects
- Cultural Resources
- Noise
- Public Services
- Traffic and Circulation
- Utilities
- Land use and Planning

Appendix A contains the Initial Study and NOP for the project. Appendix B contains the traffic study. Appendix C contains the air quality worksheets, Appendix D contains the Noise assessment, Appendix E contains the biological assessment, and Appendix F contains the cultural resources search. All other reference documents cited in the Draft EIR are on file with Eastside Union School District, 45006 North 30th Street East, Lancaster, CA 93535.

Intended Uses of the EIR

This EIR will be used by the EUSD and other responsible agencies to provide information necessary for environmental review of discretionary actions related to the Columbia Elementary School Project. The EIR may be used by the following agencies for the following discretionary actions:

The following public actions and approvals are expected to be required for the Columbia Elementary School project:

Division of the State Architect	Approval of the building plan, including soils, and foundation engineering.
California Department of Toxic Substances Control	Determination of "No Further Action" (issued)
California Department of Education	Site and plan approval
State Allocation Board	Funding approval
Office of Public School Construction	School project approval
Los Angeles County Waterworks District	Annexation to LA County Waterworks District No. 40 Approval of permits for water service
Los Angeles County Sanitation District	Annexation to the Consolidated Sewer Maintenance District Approval of permits for sewer service
Los Angeles County Fire Department	Fire safety review and approval
City of Lancaster	Annexation to the Lighting District and Maintenance District Permits for off-site improvements

Public Review and Comment

The Draft EIR was available for public inspection at the EUSD office at 45006 North 30th Street and at the Lancaster Public Library at 601 West Lancaster Boulevard in Lancaster. Organizations and individuals were invited to comment on the Draft EIR during the 45-day public review period that extended from March 7 through April 20, 2004. Persons and agencies commenting were encouraged to provide information they believe was missing from the Draft EIR, or to identify where the information could be obtained. All comment letters received were responded to in writing, and the comment letters, together with the responses to those comments, are included in Section 7.0, Responses to Comments on Draft EIR, beginning on page 67 of this Final EIR.

Contact Person

The primary contact person regarding information presented in this EIR is Dr. Gregory J. Riccio, Superintendent, Eastside Union School District. Dr. Riccio can be reached at (661) 952-1200 by phone and at (661) 952-1220 by fax.

2.0 Project Description

The Project

Eastside Union School District (EUSD or District) currently operates three elementary schools and one middle school serving approximately 3,000 students in grades K through 8. EUSD proposes to construct and operate a new elementary school in Lancaster. The proposed Columbia Elementary School is needed to accommodate the educational needs of the rapidly growing population in the east Lancaster area.

Project Objectives

The primary objectives of the project are to:

- Serve the east Lancaster area by providing needed facilities to adequately accommodate the educational needs of the area residents.
- Provide an elementary school facility that includes all needed permanent academic, recreational, administrative, and parking facilities.
- Provide for school development in a time-efficient manner.

Project Location and Surrounding Uses

The school will be located at the intersection of East Avenue J-4 and 27th Street East (see Figure 1), at a site comprising approximately 12.5 acres of vacant land, in a rapidly growing area of east Lancaster. Undeveloped vacant land surrounds the site to the north, west, and south. No residential uses adjoin the site. The closest residential uses are single family homes to the east of the site, across 27th Street East. The only other existing residential uses currently in the vicinity are located farther away to the northwest of the site, across Avenue J-4, but a new residential development is being constructed nearby at the northeast corner of 27th Street East and Avenue J-4 and extending to 30th Street East and Avenue J. The construction of that development is anticipated to be completed by the end of summer 2005.

Project Characteristics

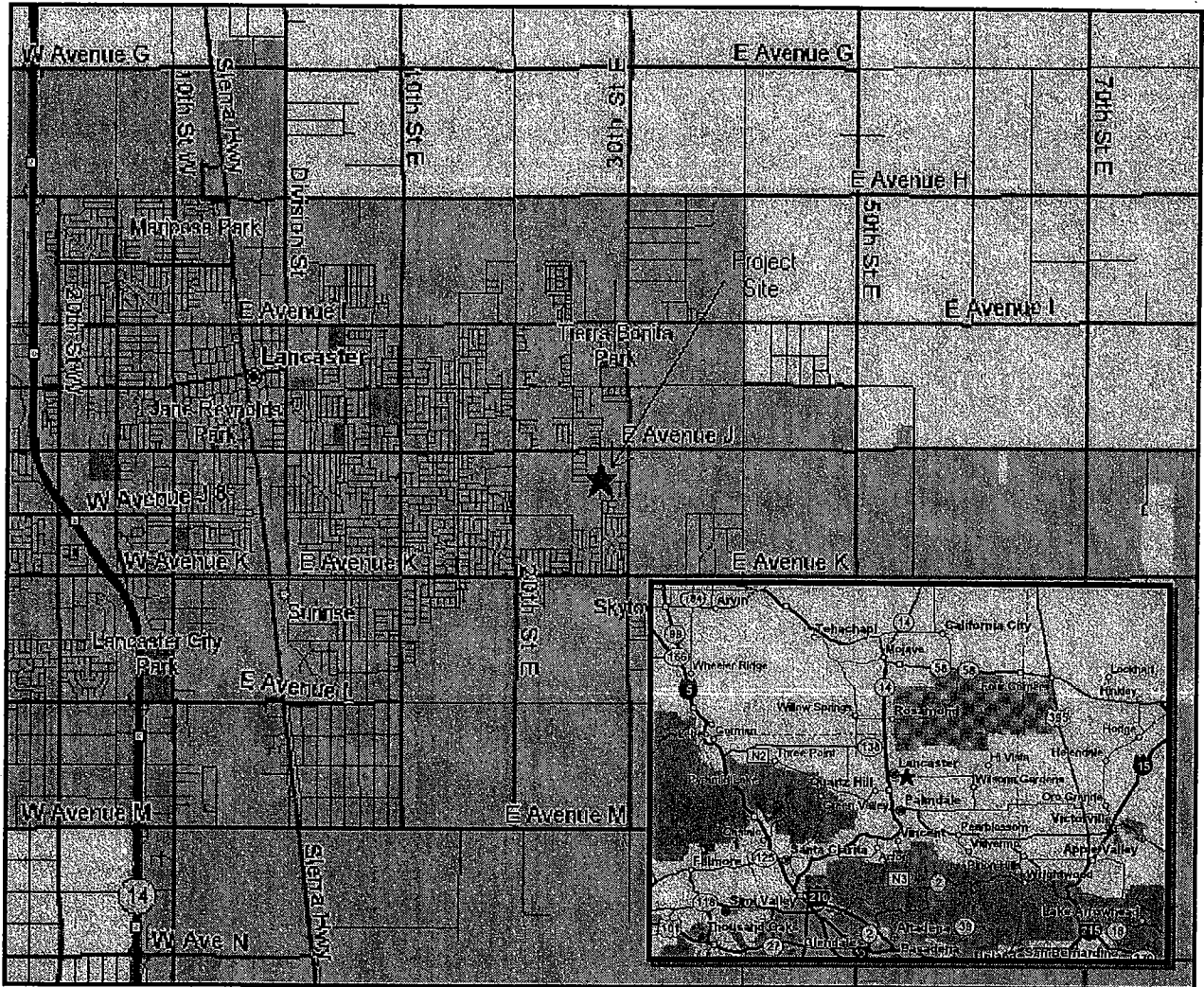
The Columbia Elementary School will serve students in the K through 6th grades. The school will accommodate approximately 850 students and 35 staff. The school will operate on a typical schedule from 9:00 a.m. to 3:00 p.m.

The conceptual site plan locates classrooms and administrative facilities in one- and two-story buildings and a kindergarten play yard on the northern portion of the site. The southern portion of the site will be used for grass play fields and hard court play areas with 2 baseball fields and 3 basketball courts. Two parking lots on the site will provide parking for faculty, staff, and visitors. (refer to Figure 2)

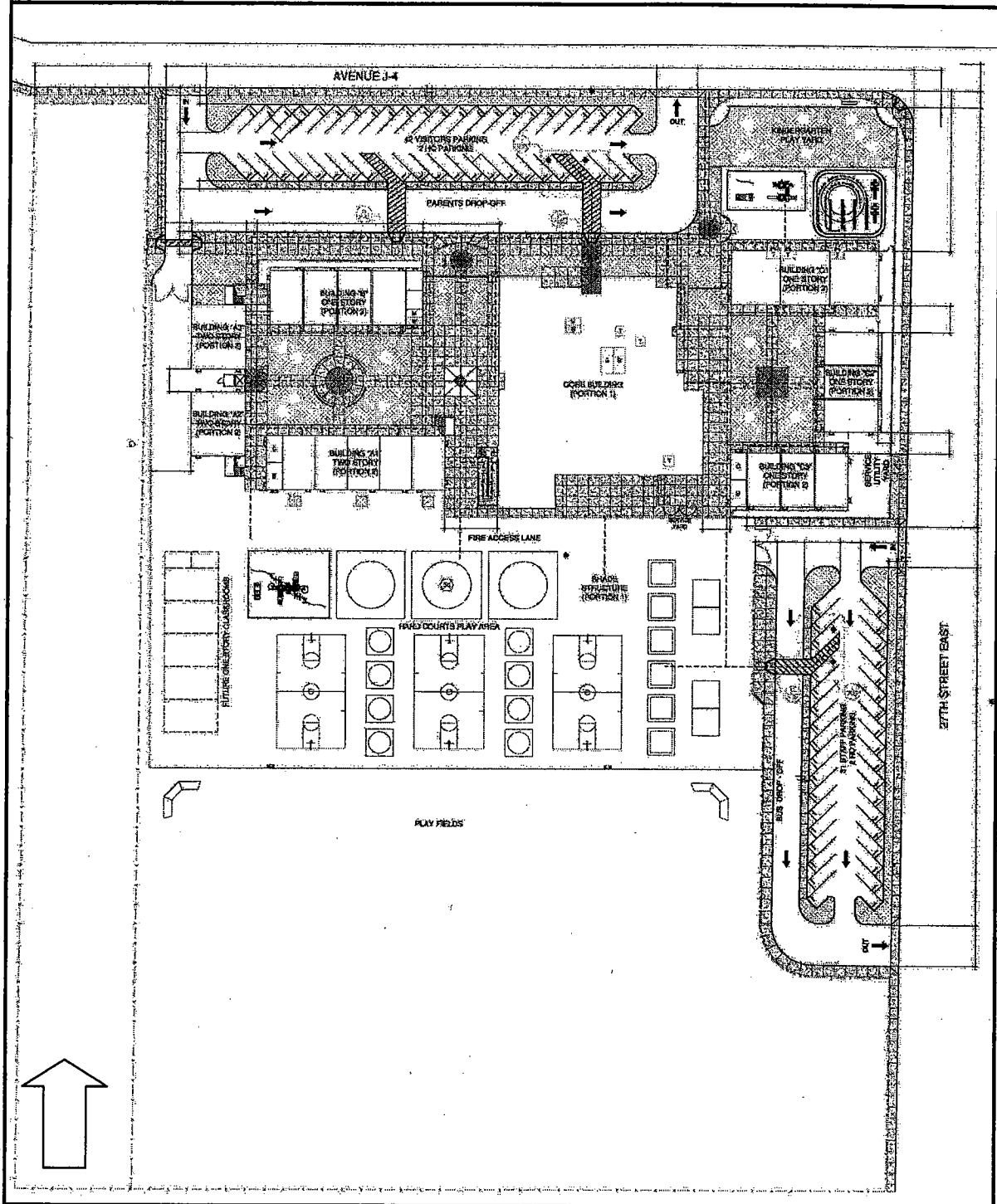
Main access to the school will be provided from Avenue J-4, via two one-way driveways (in and out). The parents drop-off area and a visitor parking will be accessed at this location. A secondary access will be provided off 27th Street East via two one-way driveways (in and out). A bus drop-off area and staff parking lot will be accessed at this location (see Figure 2).

The project also includes construction of infrastructure improvements to serve the school, including drainage, potable water, sewer, and roadway improvements such as the construction of the segment of Avenue J-4 between 26th Street East and 27th Street East adjacent to the project site.

Location Map
Columbia Elementary School
Figure 1



Site Plan
Columbia Elementary School
Figure 2



Project Actions

The following public actions and approvals are expected to be required for the Columbia Elementary School project:

Division of the State Architect	Approval of the building plan, including soils, and foundation engineering.
California Department of Toxic Substances Control	Determination of "No Further Action" (issued)
California Department of Education	Site and plan approval
State Allocation Board	Funding approval
Office of Public School Construction	School project approval
Los Angeles County Waterworks District	Annexation to LA County Waterworks District No. 40 Approval of permits for water service
Los Angeles County Sanitation District	Annexation to the Consolidated Sewer Maintenance District Approval of permits for sewer service
Los Angeles County Fire Department	Fire safety review and approval
City of Lancaster	Annexation to the Lighting District and Maintenance District Permits for off-site improvements

3.0 Environmental Impacts and Mitigation Measures

This section of the EIR examines potentially significant effects associated with construction and operation of the Columbia Elementary School and identifies mitigation measures to reduce impacts found to be potentially significant in the EIR analysis. Each environmental issue potentially resulting in a significant impact is discussed in the following manner:

Environmental Setting describes the existing environmental conditions in the vicinity of the project as it exists before the commencement of the project to provide a baseline for comparing “before the project” and “after the project” environmental conditions.

Thresholds Used to Determine Level of Impact defines and lists specific criteria used to determine whether an impact is considered to be potentially significant. Appendix F of the CEQA Guidelines; local, State, federal or other standards applicable to that impact area; and officially established thresholds of significance are the major sources used in crafting criteria appropriate to the specifics of a project, since “...an ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting” (CEQA Guidelines Section 15064 [b]). Principally, “... a substantial, or potentially substantial, adverse change in any of the physical conditions within an area affected by the project, including land, air, water, flora, fauna, ambient noise, and objects of historic and aesthetic significance” constitutes a significant impact (CEQA Guidelines Section 15382).

Environmental Impact presents evidence, based to the extent possible on scientific and factual data, about the cause and effect relationship between the project and potential changes in the environment. The exact magnitude, duration, extent, frequency, range or other parameters of a potential impact are ascertained to the extent possible to provide facts in support of finding the impact to be or be or not to be significant. In determining whether impacts may be significant, all the potential effects, including direct effects, reasonably foreseeable indirect effects, and considerable contributions to cumulative effects, are considered. If, after thorough investigation, a particular impact is too speculative for evaluation, that conclusion is noted (CEQA Guidelines Section 15145).

Mitigation Measures identify measures that can reduce or avoid the potentially significant impact in cases where the EIR analysis determines impacts to be potentially significant. Standard existing regulations, requirements, and procedures that are applied to all similar projects are taken into account in identifying what additional project-specific mitigation may be needed to reduce significant impacts. Mitigation, in addition to measures that the lead agency will implement, can also include measures that are within the responsibility and jurisdiction of another public agency (CEQA Guidelines Section 15091[a][2]).

Level of Impact after Mitigation indicates those effects that will remain after application of mitigation measures, and whether the remaining effects are considered significant. When these impacts, even with the inclusion of mitigation measures, cannot be mitigated to a level considered less than significant, they are identified as “unavoidable significant impacts.” In order to approve a

project with significant unavoidable impacts, the lead agency must adopt a Statement of Overriding Considerations. In adopting such a statement, the lead agency finds that it has reviewed the EIR, has balanced the benefits of the project against its significant effects, and has concluded that the benefits of the project outweigh the unavoidable adverse environmental effects, and thus, the adverse environmental effects may be considered "acceptable" (CEQA Guidelines Section 15093 [a]).

3.1 Traffic, Circulation, and Parking

A traffic study was prepared for the project by Willdan traffic engineers in August 2004. The findings of the study are summarized below. The traffic study is included in Appendix B.

Environmental Setting

Existing Roadway Network

The study area is bounded by E. Avenue J-4 on the north and by 27th Street E. on the east. The key streets in the vicinity of the project site include:

1. **27TH STREET EAST:** A north-south roadway, which exists in segments from Avenue I to Avenue K in Lancaster. In the study area, 27th Street East provides two lanes of undivided travel from Avenue J-4 to Avenue K and serves a residential area. The segment north of Avenue J-4 to Avenue J-2 currently is not developed. The posted speed limit on 27th Street East is 25 miles per hour.
2. **E. AVENUE J-4:** Provides two undivided lanes of travel between 25th Street East and 26th Street East and between 27th Street East and 30th Street East. In conjunction with the development of the Columbia elementary school, the segment of Avenue J-4 between 26th Street East and 27th Street East (adjacent to the project site) will be constructed.
3. **26TH STREET E:** Provides two undivided lanes of travel in the study area, and serves a residential area.
4. **30TH STREET E:** Provides between two and three travel lanes in the study area, and has a posted speed limit of 55 mph.
5. **E. AVENUE J:** Provides two undivided lanes of travel in the vicinity of the project area. Access to the Antelope Valley Freeway is provided by Avenue J.
6. **E. AVENUE J-8:** Provides two undivided lanes of travel. It currently only exists between 27th Street E. and 30th Street E., serving a residential area.
7. **E. Avenue K:** Provides three to four lanes of travel divided by a two-way left turn lane. The posted speed limit on Avenue K varies between 50 and 55 miles per hour. Full access to the Antelope Valley Freeway is provided via Avenue K.

Existing Traffic Conditions at Study Intersections

Existing AM and PM peak hour traffic counts were conducted at 10 study intersections in January and May of 2004 for use in the overall traffic analyses.

The 2000 Highway Capacity Manual software (HCS 2000) was utilized to analyze both the signalized and unsignalized study intersections in these traffic analyses. This methodology produces an intersection "volume-to-capacity" (V/C) ratio and "stopped delay per vehicle" that is related to a "level of service" (LOS) estimate. LOS, which ranges from excellent at A to failure at F (see Table 1) is a qualitative measure used to describe traffic flow conditions. It is generally recognized that LOS D or better represents acceptable intersection operations, while LOS E and F are considered over capacity.

TABLE 1 - LEVEL OF SERVICE (LOS) DEFINITIONS

STOPPED DELAY PER VEHICLE (SEC)		LOS	CONDITION
SIGNALIZED INTERSECTION	UNSIGNALIZED INTERSECTION		
Less than 10.0	Less than 10.0	A	Excellent
10.0 to 20.0	10.0 to 15.0	B	Very Good
20.0 to 35.0	15.0 to 25.0	C	Good
35.0 to 55.0	25.0 to 35.0	D	Fair
55.0 to 80.0	35.0 to 50.0	E	Poor
Greater than 80.0	Greater than 50.0	F	Failure

Source: Willdan, August 2004

The study intersections include:

- | | |
|--|---|
| 1. 30 th Street East/Avenue K | 6. 26 th Street East/Avenue J |
| 2. 27 th Street East/Avenue J | 7. 26 th Street East/Avenue J-4 |
| 3. 27 th Street East/Avenue J-4 | 8. 30 th Street East/Avenue J |
| 4. 27 th Street East/Avenue J-8 | 9. 30 th Street East/Avenue J-4 |
| 5. 27 th Street East/Avenue K | 10. 30 th Street East/Avenue J-8 |

Currently, only one intersection, 30th Street/Avenue K, is signalized. All other intersections are currently unsignalized and stop-controlled for existing approaches.

As indicated in Table 2 on the following pages, all study intersections are currently operating at good levels of services - LOS A and LOS B. Nonetheless, the traffic signal warrant analysis indicates that the intersection of 30th Street East/Avenue J satisfies the traffic signal warrant under existing (year 2004) conditions (see Table 4).

Thresholds Used to Determine Significance of Impact

The City of Lancaster considers a project to cause a significant impact if the addition of project traffic will cause an intersection to operate at LOS E or F, or result in substantial average delay to the intersection already operating or projected to operate at LOS E or F without the project. The City generally requires mitigation to improve operating conditions to LOS D.

Environmental Impact

To evaluate potential traffic impact on the local circulation system, future conditions without the project were first examined for the study area. These conditions reflect traffic increases from both general regional growth and specific future developments in the general area. Next, project traffic was estimated and assigned to the surrounding street system. Finally, Future With Project conditions were forecast by adding project traffic to the Future Without Project conditions.

Future Without Project Conditions (Year 2006)

The Future Without Project conditions reflect existing (2004) traffic volumes plus future traffic volume generated by ambient growth and other development projects in the vicinity of the project site. Based on discussions with City of Lancaster Staff, an ambient growth rate of 2% per year was utilized in the analysis. Review of area project information received from City staff along with examination of the City of Lancaster's website, identified a total of 28 other area projects within an approximate 2-mile radius of the Columbia school site and these projects were included in the traffic analysis. The 28 other projects are estimated to generate 25,890 daily trips, with 2,930 trips occurring in the AM peak hour and 3,840 during PM peak hour.

As summarized in Table 2, the analysis indicates that without the Columbia school project, the following 5 study intersections will operate at an unacceptable LOS E or F in 2006.

- 27th St./Ave J LOS E during AM peak
- 26th St./Ave J LOS E during PM peak
- 30th St./Ave J LOS F during both AM and PM peak
- 30th St./Ave J-4 LOS E during AM peak
- 30th St./Ave J-8 LOS F during both AM and PM peak

The remaining study intersections will continue to operate at an acceptable Level of Service during both the AM and PM peak hours.

The traffic signal warrant analysis (see Table 4) indicates that a traffic signal is warranted at two study intersections - 27th Street East/Avenue K and 30th Street East/Avenue J-8. Even though, the intersection of 27th Street East/Avenue K is shown to operate at an acceptable LOS B in AM peak and LOS C in PM peak as an unsignalized intersection.

The traffic study indicates that with the identified signalization, additional lanes, and restriping improvements associated with other area projects and necessary to achieve acceptable operating conditions under the Future Without Project conditions, the LOS will improve at all 5 intersections as follows:

- 27th St./Ave J LOS c during AM peak
- 26th St./Ave J LOS D during PM peak
- 30th St./Ave J LOS B during AM peak and LOS C during PM peak
- 30th St./Ave J-4 LOS D during AM peak
- 30th St./Ave J-8 LOS C during both AM and PM peak

Project Trip Generation

The Columbia elementary school will generate 1,350 daily trips, with 675 trips occurring in the morning peak hour and 675 trips occurring during the afternoon peak hour. These trips reflect that no bus service is currently anticipated and the students will be dropped off and picked up by parents or others in private vehicles. Table 3 summarizes the project's trip generation.

TABLE 2 – INTERSECTION ANALYSIS SUMMARY

INTERSECTION	DELAY (IN SEC) / LEVEL OF SERVICE (LOS) ¹					
	EXISTING (YEAR 2004) CONDITIONS		FUTURE (2006) ² WITHOUT PROJECT CONDITIONS		FUTURE (YEAR 2006) ³ WITH PROJECT CONDITIONS	
	AM/PEAK HOUR	PM/PEAK HOUR	AM/PEAK HOUR	PM/PEAK HOUR	AM/PEAK HOUR	PM/PEAK HOUR
SIGNALIZED INTERSECTION:						
30 th St. / Ave K	9.4 / A	9.8 / A	10.8 / A	20.3 / B	11.1 / B	22.1 / C
UNSIGNALIZED INTERSECTIONS:						
27 th St. / Ave J -With Improvements	13.1 / B	11.9 / B	36.3 / E 23.6 / C	24.6 / C 22.3 / C	- 23.6 / C	- 22.3 / C
27 th St. / Ave J-4 ⁴	(4)	(4)	(4)	(4)	7.12 / A	7.10 / A
27 th St. / Ave J-8	9.6 / A	9.4 / A	9.7 / A	9.4 / A	11.6 / B	11.3 / B
27 th St. / Ave K ⁴	10.3 / B	10.7 / B	13.4 / B	16.5 / C	16.3 / C	21.7 / C
26 th St. / Ave J ³ -With Improvements -With signalization	13.0 / B	13.3 / B	34.1 / D 23.7 / C	39.7 / E 28.8 / D	- 98.3 / F 6.8 / A	- 294.4 / F 7.8 / A
26 th St. / Ave J-4 ⁴	(4)	(4)	(4)	(4)	7.79 / A	7.79 / A
30 th St. / Ave J ³ -With Signal & Improvements	14.57 / B	11.63 / B	293.85 / F 15.9 / B	310.96 / F 26.6 / C	- 16.9 / B	- 31.0 / C
30 th St. / Ave J-4 -With Improvements -With Signalization	13.0 / B	11.7 / B	47.6 / E 31.2 / D	34.5 / D 24.8 / C	- 44.9 / E 7.9 / A	- 34.9 / D 7.8 / A
30 th St. / Ave J-8 -With Signal & Improvements	12.1 / B	10.8 / B	1194 / F 25.8 / C	442.8 / F 24.9 / C	- 25.3 / C	- 24.5 / C

¹ The study intersections were analyzed utilizing the 2000 Highway Capacity Manual software (HCS 200) for signalized and unsignalized intersections.

² The "Future" conditions include Existing (Year 2004) traffic volumes, general area traffic growth up to the proposed high school project's Future (Year 2006), and volumes related to other area projects in the study area.

³ These unsignalized study intersections are Two-Way STOP controlled.

⁴ These study intersections currently have only two legs with non-conflicting traffic movements and no traffic controls. These locations are not analyzed under "Existing" or "Future Without Project" conditions, since they are uncontrolled and the traffic movements do not conflict (and also due to very low traffic volumes).

⁵ This unsignalized study intersection is All-Way STOP controlled.

⁶ Under the "Future Without Project" conditions, improvements are needed to achieve acceptable intersection operations. With an added westbound through lane, acceptable operations would result.

⁷ Under the "Future Without Project" conditions, improvements are needed to achieve acceptable intersection operations. With signalization (which was previously warranted under "Existing" conditions) and the improvements which were identified as necessary at this location in a previously completed traffic study ("Eastside High School, City of Lancaster, Traffic Study; Willdan; July 9, 2004), acceptable operations would result.

⁸ Under the "Future Without Project" conditions, improvements are needed to achieve acceptable intersection operations. With an added northbound through lane, acceptable operations would result.

⁹ Under the "Future Without Project" conditions, improvements are needed to achieve acceptable intersection operations. With signalization (warranted under "Future Without Project" conditions) and the improvements which were identified as necessary at this location in a previously completed traffic study ("Eastside High School, City of Lancaster, Traffic Study"; Willdan; July 9, 2004), acceptable operations would result.

¹⁰ Signals are warranted at the two study intersections of 26th St. / Ave J and 30th St. / Ave J-4 with the addition of the proposed Columbia Elementary School project to the "Future" conditions.

TABLE 3 – PROJECT TRIP GENERATION

LAND USE	SIZE	TRIP ENDS				
		DAILY	AM PEAK HOUR		PM PEAK HOUR	
			IN	OUT	IN	OUT
ELEMENTARY SCHOOL – 850 STUDENTS						
Parents	320 Vehicles	1,280	320	320	320	320
Staff	35 Vehicles	70	20	15	15	20
Total		1,350	340	335	335	340

¹ The elementary school PM peak will not fall within the “street” peak hour (which occurs between 4:00 PM and 6:00 PM). However, to provide a “worst case” scenario, all of the vehicle traffic associated with *Columbia Elementary School* was assumed to peak during the PM “street” peak hour.

² All of the parent vehicles are assumed to enter and exit the elementary school during each peak period since they are dropping-off students (AM peak hour) or picking-up students (PM peak hour).

³ No busing is anticipated for the school at this time.

Future With Project Conditions (Year 2006)

Intersections: As shown in Table 2, with improvements in place necessary to achieve acceptable operating Future Without Project conditions, the addition of project traffic will result in 8 study intersections continuing to operate at an acceptable LOS A through C during both the AM and PM peak hours. However, the addition of project traffic will result in the following two study intersections operating at an unacceptable LOS.

- 26th Street East/Avenue J LOS F during both AM and PM peak hour
- 30th Street East/Avenue J-4 LOS E during AM peak hour

The traffic signal warrant analysis (see Table 4) indicates that both intersections satisfy the warrant. Therefore, mitigation measures consisting of signalization will be required of the Columbia school project to ensure acceptable operating conditions at these two intersections.

Roadway Segments: To address the issue of traffic on residential streets adjacent to the Columbia school site, the level of service analysis was conducted for the 6 residential roadway segments. The results of the analysis are summarized in Table 5.

TABLE 4 – SIGNAL WARRANT ANALYSES SUMMARY

SIGNAL WARRANT SATISFIED (YES OR NO) ¹			
INTERSECTION	EXISTING (YEAR 2004) CONDITIONS	FUTURE (YEAR 2006) ² WITHOUT PROJECT CONDITIONS	FUTURE (YEAR 2006) WITH PROJECT CONDITIONS
27 th St. / Ave J	NO	NO	NO
27 th St. / Ave J-4 ³	3	3	NO
27 th St. / Ave J-8	NO	NO	NO
27 th St. / Ave K	NO	YES	-
26 th St. / Ave J	NO	NO	YES
26 th St. / Ave J-4 ³	3	3	NO
30 th St. / Ave J	YES	-	-
30 th St. / Ave J-4	NO	NO	YES
30 th St. / Ave J-8	NO	YES	-

¹ Since peak hour traffic counts were conducted at the study intersections, Warrant 11 – Peak Hour Volume of the Caltrans Traffic Manual publication was determined to be the most applicable warrant and was utilized to determine the need for signalization at the study locations. Warrant 11 is based upon the peak (highest) one hour of traffic.

² The "Future Without Project" conditions include Existing (Year 2004) traffic volumes, general area traffic growth, and volumes related to other area projects in the study area.

³ The need for signalization at this study was not analyzed during these analyses conditions, due to the very low volume of traffic and the non-conflicting traffic movements.

TABLE 5 – ROADWAY SEGMENTS ANALYSES SUMMARY

ROADWAY SEGMENT	FUTURE WITH PROJECT		LEVEL OF SERVICE
	DAILY TRAFFIC VOLUME (ADT)	V/C (VOLUME TO CAPACITY RATIO)	
27 th St. / Ave J	675	(675/ 8,000 = 0.08)	A
27 th St. East / Ave J-4, East	985	(985/ 8,000 = 0.12)	A
27 th St. East / South Ave J-4	1,155	(1,155/ 8,000 = 0.14)	A
27 th St. East/ South Ave J-8	2,315	(2,315/ 8,000 = 0.29)	A
26 th St. East / South of Ave J	1,480	(1,480/ 8,000 = 0.19)	A
Ave J-8/ East of 27 th St. East	1,870	(1,870/14,500 = 0.13)	A

As shown, all of the residential roadway segments in the vicinity of the school will operate at an excellent LOS A.

Parking, Site Access, and On-Site Circulation

Parking on the school campus will be provided in two surface parking lots. A visitor parking lot will be located on Avenue J-4, and a faculty parking lot will be located on 27th Street East. A one-way drive-through lane will adjacent to each parking lot will allow ingress and egress to the parking lots and serve as a drop-off/pick-up area. A third driveway provided on 27th Street East, north of the ingress-only driveway, will be utilized by service vehicles only. The access and on-site circulation are adequate to serve the school. Appropriate signage will be provided that identifies the one-way operations of the "drive-through lanes" (west to east on Avenue J-4 and north to south on 27th Street East). The exit driveways will be controlled with stop sign. Also, Avenue J-4 and 27th Street East will be striped to provide left-turn channelization at the ingress driveways to the school site. In addition, on-street parking during school hours will be limited to Avenue J-4 and 27th Street East street segments which are directly adjacent to the school campus and may be restricted to persons other than residents.

Mitigation Measures

The following improvements will be provided as part of the development of the Columbia Elementary School project.

INTERSECTION	IMPROVEMENTS ASSUMED WITH THE DEVELOPMENT OF COLUMBIA ELEMENTARY SCHOOL
27 th St. / Ave J-4	<ul style="list-style-type: none"> Add east leg of intersection to form a "T" intersection. (Assumed to consist of one lane that will provide eastbound through and right turn movements.) Westbound approach lane will provide left turn and through movements. Northbound approach lane will provide left turn and right turn movements Install STOP signs for all approaches (All-Way STOP)
26 th St. / Ave J-4	<ul style="list-style-type: none"> Add east leg of intersection to form a "T" intersection. (Assumed to consist of one lane that will provide westbound through and right turn movements.) Eastbound approach lane will provide left turn and through movements. Southbound approach lane will provide left turn and right turn movements. Install STOP signs for all approaches (All-Way STOP).

The following improvements listed below for the Future Without the Project Conditions are assumed to be in place while the improvements identified for the Future With Project Conditions will be required mitigation measures for the Columbia Elementary School project.

Intersection	Improvements Needed to Achieve Acceptable Intersection Operations	
	Future (Year 2006) Without Project Conditions	Future (Year 2006) With Project Conditions
27 th St. / Ave J	<ul style="list-style-type: none"> Install an additional westbound through lane (for a total of two) 	<ul style="list-style-type: none"> None
26 th St. / Ave J	<ul style="list-style-type: none"> Install an additional westbound through lane (for a total of two) 	<ul style="list-style-type: none"> Signalization. (Warranted under Future With Project conditions.)
30 th St. / Ave J	<ul style="list-style-type: none"> Signalization. (Previously warranted under Existing-Year 2004 conditions.) Install a separate northbound left turn lane. Install a separate eastbound right turn lane. 	<ul style="list-style-type: none"> None
30 th St. / Ave J-4	<ul style="list-style-type: none"> Install an additional northbound through lane (for a total of two). 	<ul style="list-style-type: none"> Signalization. (Warranted under Future With Project conditions.)
30 th St. / Ave J-8	<ul style="list-style-type: none"> Signalization. (Warranted under Future Without Project conditions.) Add the east leg to intersection. (Consist of one westbound left turn lane and one through / right combination lane.) Restripe remaining intersection legs to consist of one left turn lane and one through / right combination lane. 	<ul style="list-style-type: none"> None

Level of Impact After Mitigation

With implementation of the identified mitigation measures consisting of signalization at the intersections of 30th Street East / Avenue J-4 and 26th Street East / Avenue J, these intersections will operate at a LOS A during both AM and PM peak hours. This represents an improvement over existing (year 2004) LOS B.

3.2 Air Quality

This section examines the long-term air quality impacts associated with day-to-day operations of Columbia Elementary School. The short-term construction effects are addressed in Section 3.11, Construction Effects, of this EIR. The worksheets and calculations are included in Appendix C.

Environmental Setting

Away from the cooling effects of the Pacific Ocean, climate in the Antelope Valley is characterized by hot summers and colder winters. Prevailing winds are out of the west and southwest. With the average precipitation of only between 3 and 7 inches per year, the Valley is characterized by a dry and hot desert climate.

Antelope Valley, including the Columbia Elementary School project site, is located in the western portion of the Mojave Desert Air Basin. The Mojave Desert Air Basin consists of the desert portions of Los Angeles, Kern, San Bernardino and eastern Riverside counties. The AVAQMD, which was established in 1997, regulates air quality in the Antelope Valley. The district consists of the unincorporated desert areas of Los Angeles County, the cities of Palmdale and Lancaster, the southern portion of Edwards Air Force Base and Air Force Plant 42.

The California Air Resources Board (CARB) and the U.S. Environmental Protection Agency establish ambient air quality standards for major pollutants at thresholds intended to protect public health. The Antelope Valley is a designated non-attainment area for national and state ozone standards and the state PM₁₀ standard. No other standard is exceeded, and the Valley is either classified as attainment or is unclassified for these other pollutants.

Ozone is generated locally, as well as transported from other areas. The Antelope Valley receives ozone transported from the South Coast Air Basin (SCAB) located south of the San Gabriel Mountains, which divide the two air basins in Los Angeles County. According to CARB's study, "Ozone Transport: 2001 Review," ozone from the San Joaquin Valley Air Basin has been known to reach as far south as Lancaster. The study found that ozone from the SCAB is both significant and overwhelming. However, CARB notes that population in the area is growing and as the SCAB reduces ozone levels, locally generated ozone will become a more significant cause of state and federal ozone standards being exceeded.

Current state and national air quality standards, together with health effects of regulated pollutants, are shown in Table 6.

Table 6
Air Pollutants, Ambient Air Quality Standards, and Air Pollution Health Effects

Air Pollutant	State Standard	National Standards		Health Effect
		Primary	Secondary	
Ozone (O ₃)	0.09 ppm, 1-hr. avg.	0.12 ppm, 1-hr. avg. 0.08 ppm, 8-hr. avg.	0.12 ppm, 1-hr. avg. 0.08 ppm, 8-hr. avg.	Aggravation of respiratory and cardiovascular diseases; Impairment of cardiopulmonary function
Respirable Particulate Matter (PM ₁₀)	50 µg/m ³ , 24-hr. avg. 20 µg/m ³ AGM	150 µg/m ³ , 24-hr. avg. 50 µg/m ³ AAM	150 µg/m ³ , 24-hr. avg.; 50 µg/m ³ AAM	Increased cough and chest discomfort; Reduced lung function; Aggravation of respiratory and cardio-respiratory diseases
Fine Particulate Matter (PM _{2.5})	No 24-hr., State std. 12µg/m ³ AGM	65µg/m ³ , 24-hr. avg. 15 µg/m ³ AAM	65 µg/m ³ , 24-hr. avg. 15 µg/m ³ AAM	
Carbon Monoxide (CO)	9.0 ppm, 8-hr. avg. 20 ppm, 1-hr. avg.	9 ppm, 8-hr. avg. 35 ppm, 1-hr. avg.	None	Aggravation of respiratory diseases (asthma, emphysema)
Nitrogen Dioxide (NO ₂)	0.25 ppm, 1-hr. avg.	0.053 ppm, annual avg.	0.053 ppm, annual avg.	Aggravation of respiratory illness
Sulfur Dioxide (SO ₂)	.25 ppm 1-hr. 0.04 ppm, 24-hr. avg.	0.03 ppm, annual avg. 0.14 ppm, 24-hr. avg.	0.5 ppm, 3-hr. avg.	Aggravation of respiratory diseases (asthma, emphysema)
Lead (Pb)	1.5 µg/m ³ , monthly avg.	1.5 µg/m ³ , calendar Quarter	1.5 µg/m ³	Impaired blood, nerve function; Behavioral and hearing problems in children
Visibility-Reducing Particles	Extinction coefficient of 0.23 per km, visibility of 10 miles at relative humidity less than 70%, 1 observation			
Sulfates (SO ₄)	25 µg/m ³ , 24-hr. avg.			Increased morbidity and mortality in conjunction with other pollutants
Hydrogen Sulfide (H ₂ S)	0.03 ppm, 1-hr. avg.			Toxic at very high concentrations
Vinyl Chloride	0.010 ppm, 24-hr. avg.			Carcinogenic
Note: ppm = parts per million by volume µg/m ³ = micrograms per cubic meter AAM = annual arithmetic mean AGM = annual geometric mean Source: California Air Resources Board, July 9, 2003				

The Antelope Valley Air Quality Management District has operated a monitoring station in Lancaster at 43301 Division Street since November 2001. Only the two non-attainment pollutants, ozone and particulate matter, are monitored at the station. The Lancaster station reports data most descriptive of air quality conditions at the Columbia Elementary School project site. Table 7 summarizes most current available air quality data recorded at the station.

Table 7
Summary of Air Quality Data
Lancaster Monitoring Station

Pollutant Standards	1999	2000	2001	2002	2003 ¹
Ozone (O ₃)					
State standard (1-hr. avg. 0.09 ppm)					
National standard (1-hr avg. 0.12 ppm)					
National standard (8-hr avg. 0.08 ppm)					
Maximum 1-hr concentration (in ppm)	0.10	0.14	0.15	0.16	0.16
Maximum 8-hr concentration (in ppm) ¹	0.14	0.12	0.10	0.11	0.12
Days state (1-hr) standard exceeded	1	35	37	46	50
Days national 1-hr standard exceeded	0	2	3	5	4
Days national 8-hr standard exceeded ¹	0	28	24	38	33
Fine Particulates (PM ₁₀)					
State standard (24-hr. avg. 50 µg/m ³)					
National standard (24-hr avg. 150 µg/m ³)					
Maximum 24-hr concentration in µg/m ³	85	110	64	74	57
Days exceeding state standard	2	6	5	1	2
Percent samples exceeding national standard	0	0	0	0	0
Respirable Particulates (PM _{2.5})					
National standard (24-hr avg. 65 µg/m ³)	NM	NM	NM	NM	NM
Maximum 24-hr concentration					
Percent samples exceeding national standard					
µg/m ³ = micrograms per cubic meter ND = No Data NM = Not Monitored Source: California Air Resources Board (www.arb.ca.gov)					

Although pollutant concentrations vary from year to year, depending on weather conditions, ozone concentrations have increased somewhat in the 2002-2003 period. This increase is consistent with increases that occurred in the same period in much of the South Coast Air Basin. PM₁₀ concentrations did not exceed the national ambient air standards at any time within the previous five year period.

Carbon Monoxide (CO) Hot Spots

The potential for CO hotspots, or places where CO concentrations exceed applicable standards to impact sensitive receptors, is a primary concern. CO hotspots typically occur in areas of severe traffic congestion where vehicles idle and/or wind speeds are low. CO hotspots occur mostly in the early morning hours when winds are stagnant and ambient CO concentrations are elevated.

Thresholds Used to Determine Level of Impact

The Antelope Valley AQMD has adopted the following significance thresholds for projects within the District. A project's effect is considered significant if long-term operational emissions exceed these thresholds.

Table 8
Antelope Valley AQMD Significance Thresholds for Operational Emissions

Pollutant	Pounds per day
Carbon Monoxide (CO)	548
Nitrogen Oxides (NO _x)	137
Volatile Organic Compounds (VOC)	137
Oxides of Sulfur (SO _x)	137
Particulate Matter (PM ₁₀)	82

Environmental Impact

Operational Emissions: Columbia Elementary School will accommodate approximately 850 students. The traffic study prepared for the project indicates that the school will generate a total of 1,350 daily vehicular end trips. These trips will generate exhaust emissions. Operational emissions associated with these trips and with stationary sources have been estimated using SCAQMD URBEMIS 2002 model that estimates peak vehicular and area source emissions for winter and summer. The season with the highest emissions estimate- which is summer, is reported in Table 9. The worksheets and calculations are contained in Appendix C.

TABLE 9
PROJECT OPERATIONAL EMISSIONS, YEAR 2006
(pounds per day)

	CARBON MONOXIDE (CO)	VOLATILE ORGANIC COMPOUNDS (VOC)	OXIDES OF NITROGEN (NO _x)	FINE PARTICULATE MATTER (PM ₁₀)
Area Source Emissions	1	1	1	-(negligible)
Vehicular Emissions	157	26	15	13
Total	158	27	16	13
AVAQMD Threshold	548	137	137	82
Exceeds Threshold?	No	No	No	No

Source: Modeled output from URBEMIS 2002. See Appendix C for worksheets.

As shown, operational emissions will be substantially below the AVAQMDs daily threshold amounts. Thus, impact will be less than significant.

Carbon Monoxide (CO) Hot Spots: No residential uses or other sensitive receptors adjoin the project site. However, residential uses, which are sensitive receptors to air pollutants, are located throughout the area. These receptors can be affected by localized CO concentrations, or carbon monoxide "hot spots". The State of California established CO standards of 9.0 ppm (parts per million) for an 8-hour standard and 20.0 ppm for one-hour standard. Violation of these standards is considered a significant impact. Therefore, CALINE-4, a computer model that predicts CO local concentrations, was used to determine potential for CO "hot spot" impact from the project on sensitive receptors. SCAQMD methodology recommends analyzing intersections where a level of service (LOS) C deteriorates one full LOS level or more, or where an LOS D deteriorates to any degree. Intersections analyzed in the traffic study that meet these criteria (see Appendix B) and have sensitive residential use receptors nearby are: 26th Street East/Avenue J and 30th Street East/Avenue J-4. Worst case assumptions used in the analysis include: the highest level of ambient CO concentration; worst-case peak intersection operations; sensitive receptors located next to the intersection, and a wind direction variability of 10 degrees. Operational emission factors were estimated for cruise, approach and departure speeds using EMFAC 2002. Receptors were placed at 3 meters and 7 meters (9 and 21 feet respectively) from the study intersections as recommended by Caltrans, and CO concentrations were determined for with and without project conditions traffic volumes, with the difference between the two concentrations representing a project impact. Potential impacts were analyzed for 8-hour concentrations determined using a persistence factor of 0.8 as recommended by SCAQMD, and for 1-hour concentrations (indicated in the parenthesis). The results of the analysis are summarized in Table 10.

TABLE 10
PROJECT CONTRIBUTION TO CO HOT SPOTS
YEAR 2006

INTERSECTION	8-HR/(1-HOUR) CO CONCENTRATION (PPM)		PROJECT CONTRIBUTION
	WITHOUT PROJECT CONDITIONS	WITH PROJECT CONDITIONS	
26 th St / Ave J	4.7 (5.9)	5.0 (6.2)	+0.3 (0.3)
30 th St / Ave J-4	4.8(6.0)	4.9 (6.1)	+0.1 (0.1)

As shown, the addition of school-related traffic will not result in CO concentrations above 9.0 ppm 8-hour or the 20.0 ppm 1-hour State standard at any of the study intersections where residential uses are located, and impact will be less than significant. CO hotspots typically occur in areas of severe traffic congestion where vehicles idle and/or wind speeds are low, while the high average wind speeds in Antelope Valley tend to disperse carbon monoxide quickly and stagnant conditions with minimal wind speeds are relatively infrequent. In addition, as new vehicles replace older vehicles, emissions will be lower than today even with projected growth. CARB staff estimates that a 20-year old car on the road today emits approximately 30 times the amount of pollution, on a per mile basis, that 2004 model emits. A 30-year old car emits 100 times more emissions than a 2004 model. Based on already enacted requirements, 2010 model vehicles will emit fewer pollutants still.

Toxic Emissions: In accordance with the Department of Toxic Substances Control (DTSC) requirements, the District completed a hazardous substances assessment for the project in February 2005. Based on the assessment, the DTSC issued a "No Further Action" determination for the project site. No industrial, commercial, or agricultural uses that use hazardous substances adjoin the school site. Future uses on currently vacant land near the school are single-family residences and are expected to be developed in the near future. As part of the toxic substances assessment process, the Antelope Valley Air Pollution Control District (AVAPCD) was contacted to determine if any operations in the vicinity will create any significant health risks to the students at the school. The AVAPCD has no records of any such facilities within a quarter-mile of the site. Impact will be less than significant.

Consistency with Air Quality Management Plan

If the total population generated by a project, together with the existing population and the projected population from all other planned projects in the sub-area, does not exceed the growth projections for that sub-area incorporated in the most recently adopted Air Quality Management Plan (AQMP), the project is consistent with the AQMP. Columbia Elementary school will serve current and future residents of the area and will not result in additional population growth beyond that anticipated in the City of Lancaster General Plan or in Southern California Association of Governments' (SCAG) projections upon which the AQMP is based. That population growth is already accounted for in the District's Air Quality Management Plan and SCAG's regional transportation management plan. Therefore, the project will not conflict with or obstruct implementation of the applicable air quality plan, and will not cause any violation of an air quality standard, or contribute substantially to an existing or projected air quality violation.

Cumulative Impact

The project's contribution to a cumulative impact on air quality is addressed in Section 5.0, Cumulative and Long-term Effects, of this EIR.

Mitigation Measures

Emissions from operation of the Columbia Elementary School will be substantially below the AVAQMD daily emissions thresholds. Thus, impact will be less than significant and no mitigation, beyond the provision of roadway improvements associated with the project that will improve traffic flow and thus reduce vehicular emissions, is required.

3.3 Noise

This section examines the potential long-term noise impacts associated with day-to-day operations of the Columbia Elementary School. The short-term noise impact from construction activities associated with the project is addressed in Section 3.11, Construction Effects, of this EIR.

Environmental Setting

How Sound Is Measured: Sound levels are expressed on a logarithmic scale of decibels (abbreviated as dB), in which a change of ten units on the decibel scale reflects a ten-fold increase in sound energy. A ten-fold increase in sound energy roughly translates to a doubling of perceived loudness.

In evaluating human response to noise, acousticians compensate for the response of people to varying frequency or pitch components of sound. The human ear is most sensitive to sounds in the middle frequency range used for human speech, and is less sensitive to lower and higher-pitched sounds. The "A" weighting scale is used to account for this sensitivity. Thus most community noise standards are expressed in decibels on the "A"-weighted scale, abbreviated dB (A). Zero on the decibel scale is set roughly at the threshold of human hearing. Sound levels of common sounds in the environment include office background noise at about 50 dB(A); human speech at 10 feet at about 60 to 70 dB(A); cars driving by at 50 feet at 65 to 70dB(A); trucks at 50 feet at 75 to 80 dB(A); and aircraft over flights directly overhead a mile from the runway at about 95 to 100 dB(A).

Noise Standards: The community noise environment consists of wide varieties of sounds, some near and some far away, which vary over the 24-hour day. People respond to the 24-hour variation in noise but are most sensitive to noise at night. The Community Noise Equivalent Level (CNEL) is a 24-hour average noise level based on the daytime, evening and nighttime hourly average noise levels ($L_{eq}(h)$). To account for the greater sensitivity of people to noise at night, the CNEL weighting includes a 5-decibel penalty on noise between 7:00 p.m. and 10:00 p.m. and a 10-decibel penalty on noise between 10:00 p.m. and 7:00 a.m. of the next day.

Existing Noise Levels

The Columbia Elementary School site is located in a rapidly developing area of east Lancaster. Presently, the site is surrounded by vacant land with some residential land uses nearby. The Palmdale Airport/ U.S. Air Force Plant 42 is located approximately 2.5 miles south of the project site. According to the Plant's Air Installation Compatible Use Zone (AICUZ) Report, the project site is located outside the delineated accident potential zones, and the airport's noise contours. The major source of noise affecting the project site and nearby residential areas is vehicular traffic traveling Avenue J, Avenue K, Avenue J-4, Avenue J-8, 26th St, and 27th St.

The traffic noise levels were modeled using data from the traffic study data prepared for the project by Willdan traffic engineers. Street segments and locations where there are residential uses, which are considered sensitive receptors, were identified and analyzed. As shown in Table 11, the existing traffic noise levels range from 46.9 CNEL to 49.9 CNEL along the adjoining streets where noise-sensitive receptors are located.

Thresholds Used to Determine Level of Impact

The City of Lancaster has established interior and exterior noise guidelines and noise limiting criteria for noise-sensitive land uses in the City's Noise Element of the General Plan. In noise-sensitive areas, including single family neighborhoods, the City limits noise to a Community Noise Equivalent Level (CNEL) of 65 exterior CNEL. Impact is considered significant if a project results in exterior noise levels above these limits.

Environmental Impact

Long-Term Traffic Noise

In the long term, the Columbia Elementary School will result in an increase of traffic-related noise along Avenue J-4 and 26th and 27th Streets. As shown in Table 11, the addition of project-related traffic will not result in noise levels exceeding 65 CNEL at street segments where residential uses are located.

TABLE 11
PROJECT NOISE IMPACT
YEAR 2006

Location	Existing CNEL	Future Without Project CNEL	Future With Project CNEL
27th Street East, between Avenue J-4 and J-8	46.9	47.2	51.0
Avenue J-4 between 27 th and 30 th Street	49.4	49.6	50.3
26 th Street East between Ave. J-4 and J-8	49.9	50.1	52.0

Calculations using FHWA-RD-77-108 and STAMINA 2.0 with CALVENO Reference Noise Emissions models (see Appendix C for worksheets).

As shown, traffic associated with the Columbia Elementary School will result in noise levels between 50.3 and 52.0 CNEL at locations where the nearest residential uses are located. This is substantially below the City's 65CNEL limit and therefore, according to City's standards, impact is considered to be less than significant.

School Day-to-Day Operational Noise

The operations of the Columbia Elementary School will involve delivery vehicle traffic, refuse pick-up noise, and noise related to outdoor student activities.

Refuse pick-up is likely to occur during early morning hours. These times will be temporarily impacted by the exhaust stack, engine, release of air brakes, unloading and impact noises associated with refuse pick-up activities. However, refuse pick-up takes only a short time (about fifteen minutes or less). Deliveries to the site will be made primarily by small and medium size trucks, with larger trucks only occasionally entering and exiting the school site. Noise associated with the use of play fields by kindergarteners and elementary school children during class breaks and play times has no potential to generate noise levels exceeding 65 CNEL at the nearest residential uses, and all activities will occur during school hours which are not noise-sensitive times.

Like other schools in Lancaster and Palmdale, community groups and organizations may use the school facilities for their programs and events. These may include events or occasional use of play fields, and community meetings and events. However, such additional usage is anticipated to be minimal; noise associated with such infrequent functions will normally not exceed that of the primary uses by the school; and is anticipated to occur primarily during daytime hours which are not noise-sensitive times.

Therefore, no significant noise impact to the nearest residential areas will occur.

Mitigation Measures

The noise analysis shows that the noise generation due to the operations of the Columbia Elementary School, including school-related traffic, will not cause the area noise levels to exceed the 65 CNEL exterior noise limit in the nearby residential neighborhoods. Thus, according to City noise standards, impact will be less than significant and no mitigation is required.

3.4 Water Quality

This section discusses the impact of construction and operation of the Columbia Elementary School on water quality.

Environmental Setting

The chemical quality of the groundwater in the Mojave Basin is generally satisfactory for domestic use and irrigation, as well as for most commercial and industrial uses. Total dissolved solids range from 200 to 800 milligrams per liter, with hardness as high as 1,950 milligrams per liter near Rogers Dry Lake. Although the present quality is satisfactory, there is a trend toward poorer groundwater quality, due to urban runoff, septic tank failures, declining water tables, and the parched conditions in Lancaster.

Thresholds Used to Determine Level of Impact

The project will result in a significant impact on water quality if it violates any water quality standards or waste discharge requirements.

Environmental Impact

The project is an elementary school developed on a 12.5-acre vacant site in Lancaster. The site is flat and no deep excavation operations are required either for school facilities or the associated infrastructure improvements. No drilling of wells will occur as part of school construction or operation. As illustrated in Figure 2, Site Plan, the Columbia Elementary School campus is designed to preserve open space on campus and minimize impervious surface coverage. The school buildings are clustered in the northern portion of the site, while nearly half of the 12.5-acre site will remain permeable surfaces comprised of athletic fields and landscaping. This will not result in a substantial alteration of existing drainage patterns nor an increase in runoff that would result in flooding on- or off-site. Runoff from the site will be conveyed to existing storm drainage facilities, and all necessary on-site drainage improvements are included as part of the project. Pursuant to the City requirements, the drainage infrastructure includes an easement channel/retention basin along the west side of the project site and continuing to the north, and a system of drain lines that collect surface flows and convey the flows into the channel. In compliance with existing requirements, the School District will pay connection fees to the County; these fees are intended to provide for major drainage facilities to serve area-wide and regional development, including public schools.

The Regional Water Quality Control Board (RWQCB) requires all discretionary projects, such as this project, to incorporate features to retain the first $\frac{3}{4}$ of an inch of stormwater on site during each storm event. In compliance with these existing regulations, the new drainage infrastructure constructed on the site will provide for retention of this "first flush" stormwater flows. Furthermore, the quality of stormwater runoff is regulated under the National Pollutant Discharge Elimination

System (NPDES). The NPDES storm water permits provide a mechanism for monitoring the discharge of pollutants and for establishing appropriate controls to minimize the entrance of such pollutants into stormwater runoff. The County of Los Angeles is a co-permittee under the NPDES storm water permit covering Los Angeles County (NPDES No. CAS004001). As co-permittee, the City of Lancaster requires all development projects in its jurisdiction to comply with the NPDES requirements for construction and operation as appropriate. In compliance with these existing regulations, the District will implement a Storm Water Pollution Prevention Plan (SWPPP) to ensure that water quality standards or waste discharge requirements are not exceeded. Best Management Practices (BMPs) will be utilized to reduce the extent of this runoff. BMPs may include the following:

- Schedule excavation and grading work for dry weather
- Use as little water as possible for dust control
- Never hose down dirty pavement of impermeable surfaces where fluids have spilled
- Utilize re-vegetation, if feasible, for erosion control after clearing, grading, or excavating
- Avoid excavation and grading activities during wet weather
- Construct diversion dikes to channel runoff around the site, and line channels with grass or roughened pavement to reduce velocity of runoff
- Cover stockpiles and excavated soil with raps or plastic sheeting
- Cover trucks carrying soils or other contents subject to airborne dispersal to prevent settling on the ground
- Remove existing vegetation only when absolutely necessary
- Consider planting temporary vegetation for erosion control where construction is not immediately planned; and plant permanent vegetation as soon as possible

The Columbia Elementary School is a public school similar to other schools operating in Lancaster, Palmdale and the surrounding areas. No industrial, manufacturing, medical, R&D, or other similar operations that could affect water quality will occur. Operation of the school will include classroom instructions, physical education, and possibly sport events and community events held at the campus that do not involve any activities that could generate substantially polluted runoff or waste discharges. With the implementation of BMPs and provision of drainage improvements, impact will be less than significant.

Mitigation Measures

Impact will be less than significant and no additional mitigation, beyond compliance with existing regulations, is required.

3.5 Biological Resources

A biological assessment was conducted for the project by Frank Hovore and Associates biologists. The assessment included focused field studies and surveys conducted in May and August 2004. The full report is provided in Appendix D.

Environmental Setting

The Columbia Elementary School site is currently an undeveloped 12.5-acre parcel situated between the alignments of Avenues J-4 and J-6 on the north and south, and 26th and 27th Streets East. New residential construction is underway east of 27th Street, north of J-4. All of the adjacent open vacant property has been cleared and leveled, probably for agriculture, but has been unused except by ORVs and motorcycles, and trash dumping, for a decade or more.

The physical properties of the project site have been entirely altered due to past grading and/or agricultural activities which completely leveled the land surface, removed all natural vegetation, and compacted the soils. The only contours apparent on the site are unnatural, formed by remnant grading or clearing lines, low berms which cross the site - likely over buried water lines, and piles of dumped earth with some shaped into bicycle ramps. The site has received considerable vehicle use, some of which is concentrated in a circular motor-cross, resulting in deeply etched erosional rings. Dirt roadways criss-cross the entire site, and the intersections of these are broadly denuded.

There is no natural topography, rock outcroppings, washes, sand sheets or other surface features within the project boundaries.

A ditch crosses the adjacent lot northeast of the site, originating off the corner of J-4 and 27th Street East that had water or wet mud in both May and August, 2004, indicating that it receives urban runoff, or pipeline leakage.

Vegetation Formations

Past uses left the site level and stripped of all native habitat. At present, there are no native plants on the site, nor natural habitat formations of any value to native wildlife, other than what might be provided by the thin layer of non-native herbaceous groundcover. There are no trees of any kind on the site, and the only "shrubs" are the noxious Russian thistle (*Salsola tragus*, "tumbleweed"), which forms dense stands where vehicle use is less intense.

Herbaceous annual groundcover species present included only non-native grasses (*Bromus madritensis rubens* and possibly others; *Avena* sp.), Russian thistle, short-pod filaree (*Erodium cicutarium*), and tumble-mustard (*Sisymbrium* sp.). Based upon late season growth exhibited in adjacent lots, a few other ruderal species would be expected to appear on the site, including wire lettuce (*Lactuca serriola*) and cheeseweed (*Malva parviflora*). No disturbance-tolerant native plants, such as rabbitbrush (*Chrysothamnus nauseosus*) were found, suggesting that substrates are not suitable for any species except the most resilient non-native generalist taxa. Cover values were

largely formed by homogeneous stands of Russian thistle and bromes, with the few other species occurring in small patches. Most of the site vegetation withered by late Spring and Summer, except over the berms, where some additional moisture may be retained.

No annual wildflowers were observed in either of the surveys, nor was any evidence of wildflowers on the site between the survey dates. Past uses of the site have resulted in completely degraded substrates, complete leveling of the original natural topography, hard compaction of much of the site, and possibly elevated soil salinity, all of which contribute to the lack native plants or natural vegetation formations on the site.

No areas of native Joshua tree or desert scrub habitats or vegetation formations occur within sight of the project site.

Wildlife and Habitat Values

The project site and the surrounding vacant lots have only completely disturbed, ruderal, non-native sub-shrub formations. The present condition of the project site is considered very low in biological value, because it lacks native plant species and has been invaded by noxious ruderals, provides no natural habitat structure or complexity, and lacks persistent seasonal surface water. Compared to even moderately disturbed scrub vegetation elsewhere this portion of the Antelope Valley, this site is of extremely limited biological value to native wildlife. Patterns of human activity observed on the site include heavy use by vehicles, considerable trash dumping, and the persistent presence of humans, cats and dogs associated with the nearby residential areas. Together the effects of these intrusions preclude site use by all but the most disturbance-tolerant wildlife.

Mammals: The only terrestrial predator expected to occur on the site would be coyote (*Canis latrans*), which typically ranges into urban landscapes, foraging opportunistically upon small pets, rodents, insects, and some plant species. It would be expected anywhere in the Antelope Valley, including residential areas with open space lots of sufficient size to provide cover, or contiguity to adjacent natural areas. Desert cottontail (*Sylvilagus audubonii*), Beechey ground squirrel (*Spermophilus beecheyi*) and Botta pocket gopher (*Thomomys bottae*) have persisted within the overall open space in which the parcel is situated, and were observed or detected from sign (tracks, burrows, fur, bones, etc.). No other native mammals were noted on the site.

Rodents: The only open, active burrows observed were those of Botta pocket gopher, all others appearing abandoned, and containing well-established western black widow spider webs (*Latrodectus hesperus*), indicating no recent use by squirrels or other larger vertebrates. Unlike many spiders that construct and remove webs daily, black widows may occupy the same web for months or years, so their presence in the mouth of a rodent burrow generally indicates a lack of recent use.

Mojave Ground Squirrel. The property contains no suitable habitat values for Mohave ground squirrel (*Spermophilus mohavensis*), nor are there suitable habitat values on adjacent lots. There is little likelihood that this species has persisted anywhere within the site vicinity, and wandering individuals (if such were to occur) would not find even temporary foraging or sheltering values on the project site.

Birds: Songbirds seen within the general vicinity of the project site were mostly related to the surrounding urban fringe, and included house finch (*Carpodacus mexicanus*), mourning dove

(*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), Brewer's blackbird (*Euphagus cyanocephalus*), western kingbird (*Tyrannus verticalis*), common raven (*Corvus corax*), and the non-native European house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), and rock pigeon (*Columba livia*). The only species which might nest within the site boundaries would be desert horned lark (*Eremophila alpestris ammophila*), which nests on the ground in grassland, scrub and ruderal sites, and was observed in May, 2004. The other species nest within landscaping or on buildings in the surrounding residential areas.

No predatory birds were seen during either of the site surveys, but it would be reasonable to assume that red-tailed hawk (*Buteo jamaicensis*) probably forages over the site from nearby rural residential landscapes. This species has habituated to human presence and often persists within urban settings with suitable tree cover, foraging for rodents and other small vertebrates in vacant lots and other open space.

Western Burrowing Owl: A careful search was made to determine whether or not the site supports western burrowing owl (*Athene cunicularia hypugea*), and all burrows on the property were investigated. No evidence (active burrows, pellets, feathers) of this small owl was found on the site, and the near-complete lack of prey species on the property combined with levels of disturbance from adjacent residential areas, render the site unsuitable for burrowing owl resident use. All potential perches on the site were checked for whitewash and owl pellets in May and August, and no evidence of either was found.

Reptiles: Only one species of reptile, the side-blotched lizard (*Uta stansburiana*), was observed within the project site boundaries, and the lack of natural habitat values and prey species in such degraded sites severely reduces lizard and snake diversity and numbers, relative to the faunas of healthy desert scrub formations. No evidence or individuals of Great Basin whiptail (*Aspidoscelis t. tigris*) or desert horned lizard (*Phrynosoma platyrhinos calidarium*) were observed on the site or on surrounding properties, although a few nests were found of black harvester ants (*Pogonomyrmex*). These ants are the primary food resource for horned lizards, but are not an "indicator" for their predators because they often occur in highly disturbed settings which are unsuitable for horned lizard use. No agency-listed sensitive lizard species is expected to occur on or adjacent to the project site.

No snakes were seen on the site, and it is unlikely that any but the most abundant, human-tolerant species would occur, or be able to survive, in such a setting. Common desert snake species occurring in desert scrub in this portion of the Antelope Valley include long-nosed snake (*Rhinocheilus l. lecontei*), gopher snake (*Pituophis catenifer annectans*), Mojave glossy snake (*Arizona elegans candida*), coachwhip (*Masticophis piceus flagellum*), Mojave shovel-nosed snake (*Chionactis o. occipitalis*), spotted leaf-nosed snake (*Phyllorhynchus decurtatus*), and Mojave rattlesnake (*Crotalus scutellatus*). None of these are considered sensitive species by resource agencies, and no agency-listed sensitive snakes are expected to occur on or adjacent to the project site.

Desert Tortoise: Surveys to U.S. Fish & Wildlife Service protocols were performed on 15 May, 2004, for California desert tortoise (*Gopherus agassizii*), and no tortoise evidence (burrows, tracks, fecal pellets, scrapes, scutes, etc.) was observed on the site, or within adjacent open space lots. Site conditions are entirely unsuitable for desert tortoise residence, and tortoises would not occur naturally in such a disturbed setting.

Amphibians: The nearest surface water to the project site is urban runoff in a ditch along the margin of 27th Street East north of J-4 and along the margin of the dirt alignment of 25th Street East where it meets the open space lot along J-8 - both located outside the project site. No amphibian species were observed at those locations in May or August, 2004, but western toad (*Bufo boreas halophilus*), a common generalist species, occurs in developed portions of the high desert where irrigation or urban runoff provide breeding sites. Pacific chorus frog (*Pseudacris regilla*) also often occurs within desert runoff channels, usually in the same sorts of areas as the western toad. Neither species is considered sensitive by any resource agency.

Arthropods: Arthropod diversity on the property was very low, commensurate with the lack of native plant species. Western black widow spiders were present in rodent burrows and beneath trash and debris, and several black harvester ants colonies were found around the margins of the vehicle use areas. Only a few darkling beetles (Tenebrionidae, *Eleodes* sp.) and pale band-winged grasshoppers (*Trimerotropis pallidipennis*) - both usually common to abundant in ruderal desert sites - were observed, but little house flies (*Fannia canicularis*) quickly swarmed to human activity and shade.

Butterflies: No native butterflies were seen on the site, but a single European cabbage butterfly (*Pontia rapae*), the larva of which feeds on a variety of ruderal herbaceous taxa, was observed in May, 2004.

Characteristics of the Surrounding Area

The adjacent parcels of undeveloped land surrounding the school site also have been heavily disturbed, although vehicle activity appears to be less frequent there than on the project site. The perimeter of the overall area in which the school site is situated has been developed with residential tracts, except for the northern boundary, which is undeveloped land to Avenue J. Property to the northeast of the site, east of 27th Street East, between J Street and J-4, was being graded and built-upon at the time of the August, 2004 survey. Although some of the nearby residential and light commercial areas are dispersed, the entire project site is considered in-fill, as it is surrounded by existing development.

Vegetation within the ditches near the project site consists of a mixture of native and non-native wetland and wet riparian elements, dominated by mulefat (*Baccharis salicifolia*), cattail (*Typha domingensis*), sweet-clover (*Melilotus albus*), horseweed (*Conyza* sp.), and rabbitsfoot grass (*Polypogon monspeliensis*). Habitat values formed by urban runoff support a number of native bird species, including red-winged blackbird (*Agelaius phoeniceus*), song sparrow (*Melospiza melodia*), and killdeer (*Charadrius vociferus*).

The nearest public open space is Tierra Bonita Park, at the intersection of 30th Street East and Lancaster Boulevard. There are no wildlife sanctuaries, natural areas parks, or other similar public open space areas within a 2-mile radius of the site.

Thresholds Used to Determine Level of Impact

Significant impact on biological resources will occur if the project will have a substantial adverse effect either directly or through habitat modifications, on any plant, or animal species, identified as candidate, sensitive, or special status species in local or regional plans, regulations, or by the California Department of Fish and Game or U.S. Fish or Wildlife Service. The impact will also be significant if the project will have a substantial adverse effect on any federally protected wetlands, riparian habitat or other identified sensitive natural community, or substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or with the species migratory wildlife corridors.

Environmental Impact

Sensitive Biological Resources

The complete absence of native plants or natural habitat formations on the project site greatly reduces the likelihood of it supporting agency-listed sensitive species of any kind. The only native bird species possibly residing on the site during the breeding season is the desert horned lark, and direct impacts to this taxon may be avoided by timing of clearing and construction activities. No agency-listed sensitive plant or animal species are known or are expected to occur on the site in a resource dependent, resident, or seasonal breeding basis, and the property overall does not lie within any identifiable wildlife migration, movement, or habitat linkage zone. The proposed elementary school project at this site will not adversely impact established natural, native wildlife habitat resource values, unique vegetation formations or communities. There will be no loss of native plants and no significant disturbance to native wildlife resources. No significant impact will result.

Wildlife Movement and Corridors

The project site does not lie within any part of an identifiable wildlife movement pathway, corridor or habitat linkage. The site lacks direct surface connections and alignment with whatever remnant larger areas of natural open space or historic movement zone might once have encompassed it. The overall parcels in the lot offer only degraded substrates, lacking native vegetation species or habitat formations, natural topography or food resources. The presence of aseasonal runoff in ditches on land adjacent to the site provides limited, but attractive habitat values for common, mobile desert riparian bird species, some of which occasionally may forage in the open ruderal field, but would not reside outside of the riparian habitat. The retorted and ruderal nature of the existing site resources is insufficient to induce wildlife movement onto or through the project site, and its isolation from other natural open space practically precludes all but the most mobile and human-tolerant species from wandering onto the site. No adverse impact will result.

Mitigation Measures

To ensure that no native or migratory birds will be affected the following mitigation measure will be implemented.

1. Clearing and construction activities will be avoided during the breeding season between March 15 and August 1, to the extent feasible. If clearing and construction activity cannot be accomplished outside the breeding season, a pre-construction survey by a qualified biologist shall be conducted no sooner than three days prior to the start of the activities to ensure that no active occupied nests are present on the site. If active occupied nests are present, consultations shall be initiated with the Department of Fish and Game to determine the course of action, and the determined course of action shall be implemented.

Level of Impact After Mitigation

With implementation of the identified mitigation impact will continue to be less than significant.

3.6 Cultural Resources

Cultural resources are defined as those parts of the environment that are fragile and nonrenewable evidence of human activity as reflected in districts, sites, structures, artifacts, artistic works, and natural features which were important to human culture.

Environmental Setting

The project site is located in the Antelope Valley, and encompasses vacant land surrounded by existing residential development and vacant land that is planned for residential development. The entire Antelope Valley is considered a region rich in archaeological remains and prehistoric cultures. Over 250 archaeological sites have been recorded in the Antelope Valley. However, since the Columbia Elementary School site was disturbed by grading and agricultural activity in the past, the likelihood of any undiscovered archaeological resources remaining on the site is very low. Nonetheless, a records search was conducted as part of the EIR process.

Thresholds Used to Determine Level of Impact

Impacts of cultural resources are considered significant if a prehistoric or historic archaeological site, or property of historic or cultural significance to a community or ethnic or social group, is disrupted or adversely affected.

Environmental Impact

A records search was conducted by the California Historical Resources Information System on November 4, 2004 for the Columbia Elementary School site. This search included a review of all recorded archaeological sites within a ½-mile radius of the project site as well as a review of cultural resource reports on file. No archaeological sites were identified within the project site, nor within a ½-mile radius of the project site. No isolates were identified on the project site nor within a ½-mile radius of the site. No additional cultural resources have been identified on the site nor within a ½-mile radius of the site.

In addition, the California Points of Historical Interest (PHI), the California Historical Landmarks (CHL), the California Register of Historic Places (CR), the National Register of Historic Places (NR), the California State Historic Resources Inventory (HRI), and the City of Los Angeles Historic-Cultural Monuments listings were reviewed for the project site. The search generated no potential objects of interest at the site or within a ½-mile radius of the project site.

Since the soils on the site were disturbed by past activities, the likelihood of discovering human remains on the site is extremely remote. In an unlikely event that any remains are uncovered, the District will comply with existing standard CEQA requirements, including halting construction work and allowing a qualified archaeologist, coroner, and Native American Representative to evaluate the

find to make recommendations (pursuant to CEQA Guidelines Section 15064.5[e]). Impact will be less than significant.

Mitigation Measures

The impact will be less than significant and no mitigation beyond mandatory compliance with existing regulations is required.

3.7 Police and Fire Protection Services

Environmental Setting

Police Protection

Police protection and crime prevention services for the City of Lancaster are provided on a contractual basis by the Los Angeles County Sheriff's Department. The closest Sheriff's station to the project site is located approximately 5 miles northwest of the project site, at 501 W. Lancaster Boulevard in Lancaster. Currently the Lancaster Sheriff's station serves the Lancaster area of 586 square miles with a population of about 187,000 people.

The station has approximately 189 deputy personnel, 74 civilian personnel, and 54 law enforcement vehicles. Response times to the project site are dictated by the priority of the call received and the location of patrolling deputies. Response times to the project site for emergency calls are anticipated to be between 4 and 8 minutes.

Fire Protection

The City of Lancaster, as a member of the consolidated Fire Protection District, contracts with the County of Los Angeles for fire protection services. Lancaster is located in Division IX of the Los Angeles County Fire Department (LACFD) which encompasses Lancaster, Palmdale, and unincorporated portions of Los Angeles County. Nineteen fire stations are located in Division IX. Two stations are located in close proximity to the site, Station 135 at 1846 East Avenue K-4 (approximately 2 miles southwest of the project site) and Station 117 at 44851 30th Street East (approximately 1.1 miles north of the site).

Thresholds Used to Determine Level of Impact

Impact on police and/or fire protection services will be significant if the project will require construction of new facilities or expansion of existing facilities, the construction of which would result in significant adverse physical effects, in order to maintain acceptable service ratios, response, times, and other performance objectives.

Environmental Impact

Police Protection

Security at the Columbia Elementary School will be provided by the school personnel that will be on campus during the entire school day. All after school activities and special events will be supervised by teachers, coaches, and other personnel. The Sheriff's Department will also review the campus plans to ensure that all required safety features are incorporated to the Department's satisfaction. As a result, the project will not require a new Sheriff's station or expansion of the existing station and facilities, the construction of which would result in a significant impact on the physical environment. Impact will be less than significant.

Fire Protection

In compliance with the existing State Fire Marshall requirements, the project includes the provision of the required water flows, fire hydrants, fire alarms, fire walls and dampers, and detector devices. The project also includes the required fire truck access on campus and adequate turning radius for fire equipment incorporated into the campus design in compliance with the Los Angeles County Fire Department requirements. No new or physically altered fire protection facility whose construction would result in significant impacts on the physical environment will be required as a result of the proposed project. Impact will be less than significant.

Mitigation Measures

Impact on police and fire protection services will be less than significant and no mitigation is needed.

3.8 Utilities and Service Systems

Environmental Setting

Water

The Los Angeles County Water Works District No. 40 is the agency responsible for providing retail water service to much of Lancaster. The agency relies on local groundwater as well as imported State Water Project water to meet the needs of customers within its service area. Approximately 56% of the water distributed by District is State Water Project water purchased from The Antelope Valley East Kern (AVEK) Water Agency, and the remaining 44% is local well water.

AVEK contracts directly for State Water Project water. Existing SWP facilities are capable of delivering a total of 2.3 million acre feet per year to all customers, including the Antelope Valley purveyors, during years of average rainfall, and up to 3 million acre-feet per year in a wet year. As a result of drought conditions in the past, however, water allotment from the California Aqueduct has sometimes been temporarily reduced. Whenever State Water Project water becomes limited, Lancaster becomes more heavily reliant on local groundwater sources. Ensuring an adequate supply of water, given projected growth rates and the potential for drought conditions, may require the City of Lancaster to adopt and enforce water conservation measures.

The well water comes from the Antelope Valley groundwater basin, According to the County Water Works District; the basin has a storage capacity of approximately 68 million acre-feet. Approximately 13 million acre-feet have been utilized to date, and approximately 55 million acre-feet remain in storage. Some of this stored water is not accessible because of uneconomical pumping depths, distance between the groundwater basin and current users, and the potential for subsidence. The groundwater basin has an estimated average annual natural recharge of approximately 40,700 acre-feet to 76,000 acre-feet, mostly due to surface runoff from the highland areas. Due to significant groundwater extractions, predominantly for agricultural use between 1915 and the early 1970s, the groundwater basin has been severely over drafted, resulting in groundwater levels dropping 200 to 300 feet. However, with dramatic reduction in agricultural demands, as well as increased use of imported State Water Project water, the groundwater levels in the Antelope Valley Basin have stabilized.

Sewer

The project site is located within the jurisdictional boundaries of the Los Angeles County Sanitation District No. 14. The wastewater from the Columbia Elementary School site will discharge to a local sewer line for conveyance to the District's Trunk "C" Sewer, located in Avenue J-8 at 27th Street East. This 15-inch diameter trunk sewer has a design capacity of 1.48 million gallons per day (mgd) and conveyed a peak flow of 0.4 mgd when last measured in 2004.

The wastewater from the area is treated at the Lancaster Water Reclamation Plant. The Plant has a design capacity of 16 mgd and currently processes an average flow of 13.3 mgd.

Drainage

Drainage is provided in the Lancaster region through local City of Lancaster facilities and area-wide County facilities. Currently, the site is vacant land with no drainage facilities.

Solid Waste

Solid waste disposal is provided to most of Lancaster (including the project site) by a private company, Waste Management of Lancaster, which operates the Lancaster Landfill at 600 East Avenue F. The Lancaster Valley Landfill currently accepts 15,000 tons of solid waste per month, and is expected to continue current operations until 2060 based on the population growth rate of 4% per year.

As part of the City of Lancaster's Integrated Waste Management Plan, a curbside recycling program was implemented for such items as aluminum cans, glass, and plastic bottles. To further reduce solid waste generation, the City adopted a Source Reduction and Recycling Element in 1992. As a result of these measures, approximately 20.5% of total solid waste was diverted from landfills via recycling activities by 1995.

Threshold Used to Determine Level of Impact

Impact on public utility services will be significant if the project will exceed the utility's capacity to provide services and/or require construction of new facilities or expansion of existing facilities, the construction of which could cause significant physical effects on the environment.

Environmental Impact

Water

As part of the Columbia Elementary School project, EUSD is pursuing annexation of the project site to the Los Angeles County Water Works District No. 40 in order to provide retail water service for the school. The District is pursuing this annexation with the Local Agency Formation Commission (LAFCO).

Water will be used for day-to-day operations of the elementary school. Based on water use factor of 95% of water becoming wastewater, the Columbia Elementary School will use up to 18,000 gallons of water per day. This use does not represent a substantial increase in the area's water use served by the County Waterworks District. The area is and continues to be developed with single family homes, where 500 homes use approximately 150,000 gallons of water per day. In comparison, the use of water by the school represents only about 12% of the water that is typically used by a 500-unit residential development.

On December 14, 2004, the County of Los Angeles Board of Supervisors approved an agreement with the Antelope Valley East Kern Water Agency (AVEK). Under the terms of the memorandum of understanding (MOU) approved by the Supervisors, the County Waterworks District 40 is to receive a steady supply of water from AVEK, which is the Antelope Valley's primary purveyor of water from the State Water Project. Pursuant to the MOU agreement the County will continue to receive a pro-rata share of AVEK supply in dry years, and AVEK and the Waterworks District 40 will develop a water-banking system within the Antelope Valley groundwater basin. The Waterworks District 40 will be issuing will serve letters, and the Waterworks District and Department of Public Works will work together with both the City of Lancaster and City of Palmdale on all city critical path projects. To speed the process up, the County will have a designated staff specifically committed to handle projects in the Antelope Valley.

The school project includes construction of all required water infrastructure to serve the school, and the EUSD will pay applicable hook-up fees to the County Waterworks District to connect to the District's facilities. In addition, in compliance with State mandated water conservation measures, all school facilities will be equipped with water saving devices, including ultra-low toilets, urinals, and taps, water-conserving plumbing, and other required water conservation measures will reduce water use on-site. If the City of Lancaster adopts and enforces additional conservation measures, the District will implement such measures at the Columbia Elementary School. ~~In compliance with the existing requirements, the District will pay existing water supply charges and a new water supply reliability charge pursuant to the adopted County ordinance establishing the charge. With payment of these fees~~ no additional water resources or entitlements will be needed to serve the school, and impact will be less than significant.

Sewer

The project includes construction of all required sewer infrastructure to serve the school with underground sewer lines sized to adequately convey peak wastewater flows generated by the school facilities. In addition, any off site improvements to local City sewer lines will be provided as needed in compliance with the City of Lancaster requirements. According to the Sanitation Districts, the project will generate a wastewater flow of approximately 17,000 gallons per day. The wastewater will discharge to a local sewer line for conveyance to the District's Trunk "C" Sewer, located in Avenue J-8 at 27th Street East. This 15-inch diameter trunk sewer has a design capacity of 1.48 million gallons per day (mgd) and conveyed a peak flow of 0.4 mgd when last measured in 2004. Therefore, the trunk has adequate capacity to accommodate project's flows. The school's wastewater will be treated at the Lancaster Water Reclamation Plant. The Plant has a design capacity of 16 million gallons per day (mgd) and currently processes an average flow of 13.3 mgd. The addition of the project's wastewater represents only 0.7%, or less than one percent, of the Plant's remaining capacity. The EUSD will pay applicable connection fees to the County Sanitation District which are designed to provide funding for construction of regional facilities to ensure adequate capacity to serve the on-going development. Also, as part of the Columbia Elementary School project, EUSD is pursuing annexation of the project site to the County Consolidated Sewer Maintenance District. Impact will be less than significant.

Drainage

The school facilities will cover less than half of the 12.5-acre site area with buildings and parking, which are impermeable surfaces. The remainder of the site will be used for play fields and landscaping and remain permeable surfaces. Therefore, no substantial increase in runoff will result that would require construction of major local or regional facilities. The project includes all necessary on-site drainage improvements to convey runoff from the site via underground storm drain pipes to the existing local facilities, in compliance with the City of Lancaster requirements. Pursuant to the City requirements, the drainage infrastructure includes an easement channel/retention basin along the west side of the project site and continuing to the north, and a system of drain lines that collect surface flows and convey the flows into the channel. The project's drainage plans will be reviewed by the City to ensure that a sufficient capacity is provided. The District will pay all required connection fees which are designed to provide for construction of area-wide and regional facilities to adequately serve the on-going development. Therefore, impact will be less than significant.

Solid Waste

The project will generate a limited amount of solid waste. During construction of the project, inert materials, including vegetative matter, asphalt, concrete and other recyclable materials will be recycled to the extent feasible. In school's operations, the District will implement a campus-wide recycling program to minimize the amount of solid waste generated by the school that will need disposal. Using a factor of approximately 0.12 tons of waste per student per year, the school is expected to generate approximately 102 tons of solid waste per year, or less than 40 tons per month. This represents less than 0.3% (three-tenths of one percent) of the current volume of 15,000 tons of solid waste per month that is disposed of at the Lancaster Valley Landfill. The landfill is expected to continue current operations until 2060 based on the population growth rate of 4% per year, providing ample capacity to accommodate the project. Impact will be less than significant.

Mitigation Measures

Impact will be less than significant and no additional mitigation, beyond compliance with existing requirements, including the payment of the existing water supply charges, and a new water supply reliability charges pursuant to the adopted County ordinance establishing the charge, is required.

3.9 Hazardous Materials

A Preliminary Environmental Assessment (PEA) was completed by Leighton Consulting, Inc. for the project in February 2005, and the findings of the study are summarized below. The complete PEA report is available under separate cover at EUSD offices.

Environmental Setting

The project site consists of approximately 12.5 acres of vacant land. The site is surrounded by undeveloped, vacant land to the west, north, and south and by residential development to the east and northwest.

Threshold Used to Determine Level of Impact

Impact will be significant if the project will result in a significant hazard to the public or the environment through transport, release or disposal of hazardous substances, or due to the location within ¼ mile of a site that emits or handles hazardous materials the exposure to which will cause public health effects.

Environmental Impact

The project is an elementary school that does not involve the transport, use, or disposal of hazardous materials. The on-site use and storage of hazardous materials is limited to small amounts of everyday household cleaners, common chemicals used for landscaping and maintenance, and common chemicals and substances used for science classes. The limited use of these common hazardous materials is subject to EUSD guidelines.

The Environmental Site Assessment included a reconnaissance level assessment of the site. No structures or hazardous waste was observed on the site and none of the properties surrounding the site were identified that would pose a risk to the site. According to the South Coast Air Quality Management District, there are no permitted facilities that emit hazardous substances or acutely hazardous substances located within a ¼ mile of the project site. However, in the past the site was used for agricultural purposes and chicken coops were located on the southern portion of the property. The coops were removed from the site by 1993. Therefore, the District has prepared a PEA pursuant to the California Education Code that requires the completion of a PEA with the Department of Toxic Substances Control (DTSC) oversight for all new school sites that will receive state funding prior to proceeding with the construction of the school.

The overall objectives of the PEA are to:

- Evaluate historical information for indications of past use, storage, disposal, or release of hazardous wastes/ substances at the site.
- Establish through a field sampling and analysis program the nature of the hazardous wastes/substances that may be present in soil at the site, the concentration, and general extent.
- Estimate the potential threat to public health and/or the environment posed by hazardous constituents at the site, if any, using a residential land-use scenario.

A sampling and analysis program was conducted to evaluate the potential presence of chemical constituents in the soil at the project site. The PEA concluded the following with respect to the site:

- The results of the PEA indicate that there are no on-site subsurface issues of environmental concern that would prevent the site's development as a school.
- The levels of hazardous materials detected at the site do not pose a significant threat to future students, staff, or community members who will utilize the school facility when evaluated with very conservative exposure assumptions.
- The analytical results in the PEA indicate that there have been no past practices or releases to the site that would result in an unacceptable health risk.

Based on the results of the PEA analyses, the Department of Toxic Substances Control issued a "no further action" determination. Therefore, impact will be less than significant.

Mitigation Measures

Impact will be less than significant and no mitigation is required.

3.10 Land Use and Planning

Environmental Setting

The Columbia Elementary School project is located at the intersection of East Avenue J-4 and 27th Street East, in a rapidly developing area of east Lancaster. The site comprises approximately 12.5 acres of vacant land. Undeveloped vacant land surrounds the site to the north, west, and south. No residential uses adjoin the site. The closest residential uses are single family homes to the east of the site, across 27th Street East. The only other existing residential uses in the vicinity are located farther away to the northwest of the site, across Avenue J-4, but a new residential development is being constructed nearby at the northeast corner of 27th Street East and Avenue J-4 and extending to 30th Street East and Avenue J. The construction of that development is anticipated to be completed by the end of summer 2005.

Thresholds Used to Determine Level of Impact

Impact will be significant if the project will conflict with any applicable land use plan, policy, or regulation, or divide an established community.

Environmental Impact

The project site is surrounded by existing residential development, residential development under construction and vacant land designated for urban residential development. The provision of an elementary school facility at the project site will not divide any established community as the site is located within a growth area and is surrounded by existing residential development to the east and northwest, and future residential development to the north, west, and south, including residential development that is currently under construction. The entire area where the site is located is designated for urban residential uses. Schools serve residential areas and they are typically located in residential neighborhoods. To provide for the necessary elementary school facility to serve residents of the existing and future residential development within the project area, the District (EUSD) plans to exempt itself from local zoning regulations as provided for in State law.

With expansive residential development occurring in the Valley over the last several years, the residential population has been growing at a rapid pace. As a result, schools and other essential facilities serving residents of the existing and new homes must be provided to keep up with the residential growth. The City of Lancaster is a large population center in the Valley, with a major freeway, paved street, sewer, and other urban amenities. The project area, like other areas all across the Valley, has also been changing from a semi-rural to suburban community. Schools are essential public facilities serving residents of both more urbanized areas and less urbanized areas, and thus are located within residential areas of all types. The proposed elementary school is such

an essential public facility to serve the children of current and future residents of neighborhoods in the project area and a rapidly growing east Lancaster area. The project will provide numerous on-site and offsite improvements. These include construction of infrastructure improvements to serve the school, including fire hydrants, potable water, drainage, sewer, and roadway improvements including the construction of the segment of Avenue J-4 between 26th Street East and 27th Street East adjacent to the project site. As a result, the project will not result in a significant impact with regards to land use and planning. The District will also implement all feasible mitigation measures identified in the environmental analysis to reduce the identified significant impacts with regards to traffic, construction, and other effects.

Mitigation Measures

No significant land use and planning impact will result, and no additional mitigation, beyond compliance with existing regulations and implementation of the feasible mitigation measures identified in this EIR, is required.

3.11 Construction Effects

This section examines short-term effects associated with construction of the Columbia Elementary School Project. Construction impact is considered short-term as it will cease upon completion of construction activities.

Environmental Setting

The project site is located at the intersection of East Avenue J-4 and 27th Street East and comprises approximately 12.5 acres of vacant land. Undeveloped vacant land surrounds the site to the north, west, and south. No construction activity is presently taking place on the site or in the site's vicinity. No residential or other sensitive uses adjoin the site. The closest residential uses are single family homes to the east of the site, across 27th Street East. The only other existing residential uses currently in the vicinity are located farther away to the northwest of the site, across Avenue J-4, but a new residential development is being constructed nearby at the northeast corner of 27th Street East and Avenue J-4 and extending to 30th Street East and Avenue J. The construction of that development is anticipated to be completed by the end of summer 2005.

Thresholds Used to Determine Level of Impact

Impact is considered significant if project-related construction activities will substantially disrupt or interfere with day-to-day operation of surrounding land uses, substantially affect sensitive uses, or create public health or safety hazards.

Environmental Impact

Water Quality

During grading, site preparation, and other construction activities at the project site, the site will be watered to control dust in compliance with existing regulations - which has the potential of affecting water quality by creating runoff containing pollutants. To control the pollutants in storm water runoff, regulations have been enacted under the National Pollutant Discharge Elimination System (NPDES) permits. For construction sites over one acre in size, current regulation requires the design and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which focuses on the use of Best Management Practices (BMPs) to prevent pollutants from entering storm water runoff. In compliance with these existing regulations, the District will implement SWPPP that may include the following BMPs to help reduce construction impacts on water quality:

- Schedule excavation and grading work for dry weather
- Use as little water as possible for dust control
- Never hose down dirty pavement of impermeable surfaces where fluids have spilled

- Utilize re-vegetation, if feasible, for erosion control after clearing, grading , or excavating
- Avoid excavation and grading activities during wet weather
- Construct diversion dikes to channel runoff around the site, and line channels with grass or roughened pavement to reduce velocity of runoff
- Cover stockpiles and excavated soil with raps or plastic sheeting
- Remove existing vegetation only when absolutely necessary
- Consider planting temporary vegetation for erosion control where construction is not immediately planned
- Plant permanent vegetation as soon as possible

With implementation of these BMPs impact will be less than significant.

Air Quality

Construction activities typically have the potential to result in generation of substantial PM10 (fine particulate matter) and NOx (oxides of nitrogen) emissions from diesel-powered heavy equipment, grading and other dust-generating activities. The most intensive part of the construction activity will involve site preparation and grading. The project site is flat and does require extensive excavations. Grading will begin in 2005 and the entire site and offsite improvement areas will be rough graded at one time. During the finishing phase of construction, the school buildings will be painted with low VOC (volatile organic compounds) coatings that meet the requirements of the Antelope Valley Air Quality Management District Rule 1113, in compliance the existing regulations.

Construction emissions, including grading, were analyzed with the current version of the California Air Resources Board model, URBEMIS2002. The model uses current CARB emission factors for automobile and truck emissions and EPA emission factors for equipment emissions and fugitive dust emissions. URBEMIS estimates worker trips and truck trips based on average construction requirements for total land uses in the project. To account for a worst-case possibility, the highest number of equipment pieces on any given day is used and all equipment pieces are assumed to operate full 8 hours a day, even though in practice, not all this equipment will be in use simultaneously for 8 hours during any single construction day. The estimated peak day emissions are shown in Table 12. The worksheets and calculations are included in Appendix C.

Table 12
Project Peak Day Construction Emissions
(pounds per day)

Pollutant	Carbon Monoxide (CO)	Reactive Organic Compounds (ROG)	Oxides of Nitrogen (NO _x)	Particulate Matter (PM ₁₀)
Maximum Daily Construction Emissions	209	29	233	27
SCAQMD Daily Significance Threshold ¹	550	75	100	150
Significant Impact?	No	No	Yes	No

As shown, peak construction emissions are below the SCAQMD thresholds for CO, ROG, and PM10. However, the peak day emissions of oxides of nitrogen will be above the significance threshold amount and thus, this impact is considered significant.

Toxic Emissions

The California Air Resources Board has identified diesel particulate emissions as carcinogenic air toxics. No safe threshold for the emissions has been established. Since there are nearby residences to the school site, sensitive receptors could be exposed to some diesel particulates from construction equipment. However, the amount of diesel emissions will usually be very small. Risk for any individual project is generally assumed on the basis of cumulative exposure from multiple sources in the area, such as from freeways, ports, bus depots, and similar large operations where there are large numbers of diesel trucks. Because the Columbia Elementary School is not located in proximity to other large sources of diesel emissions and cumulative exposure is low, diesel exposure from construction of the school will not be a significant adverse impact. Nonetheless, because there are existing residences nearby, some sensitive receptors could be exposed to some diesel particulates from construction equipment and thus, mitigation measures will be required to reduce diesel emissions. In addition, even though the emissions of particulate matter (PM10) from dust will be below the threshold for a significant impact, the District will implement mitigation measures to protect the nearby residential uses. The Preliminary Environmental Assessment (PEA) was prepared for the project to evaluate the potential for release of hazardous substances in the soils. The PEA analyses indicate that grading and construction will not pose any health hazards associated with soils on the site.

Noise

Construction activities will result in a temporary increase in ambient noise levels in the vicinity of the project site. During the construction period, noise from heavy equipment, power and air tools,

compressors, trucks, backing bells or buzzers, and the banging and other noises from loading and unloading will occur with varying frequency and intensity. At a distance of 50 feet from the noise source, construction equipment noise levels (principally from engine exhaust and engine noise) range from 75 to 95 dB(A) for tractors, up to 95 dB(A) for construction trucks, up to 88 dB(A) for concrete mixers, and up to 87 dB(A) for compressors. These temporary noise levels will not be continuous but will vary as equipment is used for varying lengths of time throughout the construction period. During grading and other construction, peak noise levels at 50 feet would range from 75 to 90 dB(A), with occasional higher peaks.

Noise levels fall substantially with increasing distance from the noise source, both as a result of spherical spreading of sound energy and absorption of sound energy by the air. Spherical spreading of sound waves reduces the noise of a point source by 6 decibels for each doubling of distance from the noise source. Absorption by the atmosphere typically accounts for a loss of 1 decibel for every 1,000 feet. Thus, high levels of construction noise usually are limited to the immediate vicinity of construction activities.

The City of Lancaster Municipal Code noise regulations (Section 8.24.040) limit construction activities to between sunrise and 8:00 PM on all weekdays and prohibit Sunday construction noise. The City General Plan EIR (1997) found construction noise to be a short-term occurrence, prohibited at night and on Sunday, and thus an adverse but less than significant impact. However, because residential uses are located near the site, noise from construction, albeit intermittent and short-term, is considered to be a significant impact. Mitigation measures have been identified to reduce this impact.

Solid Waste

The project site is undeveloped land and no demolition of structures, which creates demolition debris, will occur. Construction of the school facilities and associated infrastructure improvements may generate construction materials waste. Even though the proposed school is a relatively small project that does not involve massive construction activities that could generate significant amounts of solid waste, mitigation has been identified to reduce this impact.

Mitigation Measures

Water Quality

Compliance with existing regulations and requirements will ensure that impact will be less than significant: no additional mitigation is required.

Air Quality

The following conditions shall be imposed on the construction contractor:

1. Exposed surfaces are watered three times a day
2. Soils stabilizers are applied to disturbed inactive areas
3. Ground cover is replaced quickly in inactive areas
4. All stockpiles are covered with tarps or plastic sheeting
5. All unpaved haul roads are watered 3 times daily
6. Speed on unpaved roads is reduced to below 15 miles per hour
7. Trucks carrying contents subject to airborne dispersal are covered
8. Grading and other high-dust activities cease during high wind conditions (wind speeds exceeding a sustained rate of 25 miles an hour)
9. Diesel particulate filters are installed on diesel equipment and trucks
10. To reduce emissions from idling, the contractor shall ensure that all equipment and vehicles not in use for more than 5 minutes are turned off

Noise

In addition to compliance with the City of Lancaster regulations that limit noise-generating construction activities to weekdays and Saturdays between sunrise and 8 PM and prohibit construction on Sundays, the District will implement the following mitigation measures through conditions imposed on the construction contractor.

11. The contractor shall ensure that each piece of operating equipment is in good working condition and that noise suppression features, such as engine mufflers and enclosures are working and fitted properly.
12. The contractor shall locate noisy construction equipment as far as possible from residential areas.
13. The contractor shall route construction-related traffic away from residential areas, to the extent possible.

Solid Waste

14. Construction inert materials, including vegetative matter, asphalt, concrete, and other recyclable materials will be recycled to the extent feasible.

Level of Impact After Mitigation

Impact on water quality and solid waste facilities will remain less than significant. Implementation of the identified measures will reduce construction impact on solid waste facilities to a less than significant level. However, even with incorporation of identified feasible mitigation measures, peak emissions of NO_x could remain above the threshold of significance amount and, thus, this impact is considered significant. The impact of noise from construction activity on the nearby residences, albeit reduced and intermittent, will remain significant and unavoidable.

4.0 Alternatives to the Project

The following discussion considers alternative development scenarios for Columbia Elementary School. Through comparison of these alternatives to the project, the relative advantages of each can be weighed and analyzed.

The CEQA Guidelines state that an EIR need not consider every conceivable alternative to the project (Section 15126.6a), or an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative (Section 15126.6f3). The law requires that a range of alternatives be addressed “governed by ‘a rule of reason’ that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice”, and the discussion of alternatives must focus on alternatives that are potentially feasible and capable of achieving major project objectives while avoiding or substantially lessening any significant environmental effects of the project (CEQA Guidelines, Section 15126.6f).

The District’s major objectives for Columbia Elementary School include:

- Serve the east Lancaster area by providing needed facilities to adequately accommodate the educational needs of area residents.
- Provide an elementary school facility that includes all needed permanent academic, recreational, administrative, and parking facilities to comprehensively serve the students needs.
- Provide for school development in a time-efficient manner

The analysis in this EIR indicates that the project will result in significant and unavoidable short-term project specific and cumulative construction noise and air quality impacts, and a long-term cumulative air quality impact. All other project impacts evaluated in this EIR were found to be less than significant or can be mitigated to a less than significant level with mitigation measures identified in this EIR.

The terms “environmentally superior” and “environmentally inferior” used in the discussion of alternatives refers only to the comparative environmental effects of the project and alternatives. Environmental effects after full implementation of mitigation measures are used as a basis for comparison.

The following alternatives are considered in this EIR:

- No Project alternative required by CEQA
- Smaller project
- Alternate location alternative

Alternative 1: No Project Alternative

The No Project alternative, required by law to be evaluated in the EIR, considers "existing conditions... as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services" [CEQA Guidelines Section 15126.6 (e)(2)].

Potential Development: In the absence of the project, the vacant project site would be developed in accordance with the City of Lancaster land use plans. The site is currently designated for urban residential uses at a density of approximately 6 units per acre (R1-7,000). Development with residential uses would result in approximately 75 single family homes on the project site.

Environmental Effects: The construction of 75 houses would require grading, site preparation, construction of structures, construction of roadway and other infrastructure improvements over the entire site, same as with the project. Therefore, as with the project, construction-related air quality and noise impacts would be significant and unavoidable. The addition of exhaust emissions generated by vehicular trips of that residential development to the Mojave Desert Air Basin, even though of a lesser magnitude than that of the project, would result in a significant and unavoidable cumulative impact, same as with the project. As with the project, the commencement of construction activities would need to occur outside the breeding season to protect migratory and native birds. Therefore, this alternative would neither avoid, nor reduce the project's significant unavoidable impacts to a level below significance.

Relation to Project Objectives: This alternative does not meet any of the project's primary objectives and, therefore, is not considered to be a feasible alternative to the project.

Alternative 2: Smaller Project

This alternative considers developing the project site with a comprehensive elementary school that would accommodate fewer students than currently proposed.

Development Potential: Under this alternative, the site would be developed with an elementary school that accommodates approximately 500 students. This represents a 42% reduction in the student enrollment level in comparison with the project.

Environmental Effects: Similar to the project, construction of the school facilities under this alternative would involve site preparation, grading, and construction of buildings and infrastructure improvements over the entire site. With fewer students, fewer classroom buildings would be needed, but all other facilities comprising a comprehensive school, including play fields, would be constructed on the site pursuant to this alternative as well. As with the project, the construction activities would generate air pollutant emissions and noise, resulting in significant and unavoidable project specific and cumulative construction-related air quality and noise impacts. As with the project, the commencement of construction activities would need to occur outside the breeding season to protect migratory and native birds.

Environmental effects associated with the level of student enrollment, such as a school-related traffic and the resultant exhaust emissions and noise associated with vehicular travel, would be reduced by

approximately 42%, in proportion to the reduction in enrollment. However, the same roadway improvements required of the project would also be required for this alternative to ensure an acceptable level of service at the intersections serving the site, including the intersections of 27th Street East and Avenue J-4 and 26th Street East and Avenue J-4. With these improvements, traffic impact under this alternative would be reduced to a less than significant level, like that of the project. Vehicular noise and exhaust emissions generated at the site would be approximately 42% less under this alternative, resulting in impacts that like with the project, are less than significant but of a smaller magnitude. However, since vehicular trips associated with a 500 student enrollment level would add pollutants to the air basin, a cumulative air quality impact would remain significant and unavoidable, albeit of lesser magnitude, under this alternative as well.

In comparison with the project, this alternative would result in additional significant environmental impacts. To help accommodate the rapidly growing population generated by an expansive and fast-paced residential development in east Lancaster and the surrounding areas, a new comprehensive elementary school with a capacity to accommodate 850 is necessary. Pursuant to this alternative, a school with a capacity to accommodate 500 students would be developed at the project site. As a result, one more school with a capacity to accommodate 350 students would have to be developed somewhere else at another location in east Lancaster. Construction and operation of another school when considered together with the construction and operation of a smaller school at the project site, would result in greater significant unavoidable effects with regards to air quality, noise, traffic, and lighting and glare. Depending on the specific location for another school, additional significant effects associated with biological resources and other environmental factors could also result.

Since this alternative would ultimately result in overall greater environmental effects due to the development of two schools instead of one, and none of the significant project effects would be reduced to a less than significant level within the locality of the project site, this alternative is considered environmentally inferior to the project.

Relation to Project Objectives: The alternative would only partially achieve the major project objectives to provide a needed elementary school facility to help accommodate the District's rapidly growing student population; provide a elementary school facility that includes all needed permanent academic, recreation, administrative, support, and parking facilities on-site to comprehensively serve the students needs; provide a comprehensive elementary school within a the east Lancaster growth area; and provide for school development in a time-efficient manner.

Alternative 3: Alternate Location Alternative

Development Potential: This alternative considers developing a new comprehensive elementary school as proposed at another location in Lancaster. The District does not own another site suitable for development with a comprehensive elementary school campus in the east Lancaster area. Vacant sites within growth areas are scarce as most of the land is already slated for residential development, with a multitude of new subdivisions coming into construction or planned for construction in the near future. As a result, a site at the far outskirts of the city, in a rural area and away from the residential growth areas, would most likely constitute an alternate location pursuant to this alternative.

Environmental Effects: Under this alternative all of the project's environmental effects would basically relocate to another location. Construction emissions and noise, traffic and traffic noise, lighting effects and other effects associated with the construction and operation of a comprehensive school for 850 students would be the same at another location as at the project site. If the alternate location were to be within another growth area of the city, the alternate site - like the project site - would also be surrounded by the existing and/or future residential development and single-family neighborhoods. If the alternate location were to be within a rural, undeveloped area at the outskirts of the city, environmental effects would increase substantially. More students would live far away and need busing that would generate more diesel emissions; longer vehicular trips would generate more exhaust emissions; more and larger roadways and infrastructure improvements would need to be constructed due to lack of facilities in the area generating additional construction emissions and noise. Since most of the land in more remote city areas contains native vegetation and habitats, this alternative would most likely result in new significant impacts on biological resources. Therefore, depending on a specific location, this alternative would be either environmentally comparable or environmentally inferior to the project.

Relation to Project Objectives: Major project objectives of providing a needed comprehensive elementary school facility within in east Lancaster growth area, and provide for school development in a time-efficient manner would not be achieved under this alternative. The EUSD has searched for suitable, available, and feasible location for an elementary school in the east Lancaster growth area, and as a result of that search, the District has identified the project site as most suitable for the purpose of developing a comprehensive elementary school to serve the children of the area's current and future residents.

5.0 Cumulative and Long-Term Effects

The CEQA Guidelines (Section 15355) define a cumulative impact as “an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts.” The Guidelines further state that “an EIR should not discuss impacts which do not result in part from the evaluated project.”

Section 15130(a) of the CEQA Guidelines requires a discussion of cumulative impacts of a project “when the project’s incremental effect is cumulatively considerable.” Cumulatively considerable, as defined in Section 15065(c), “means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.”

An adequate discussion of significant cumulative impacts requires either (1) “a list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or (2) “a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area-wide conditions contributing to the cumulative impact.” This cumulative impact analysis evaluates impacts based on a list of past, present, and probable foreseeable projects (see Appendix B, Traffic Study Table 3). The CEQA Guidelines recognize that cumulative impacts may require mitigation, such as new citywide ordinances, that go beyond project-by-project measures.

Traffic and Circulation

Cumulative traffic, circulation, and parking impacts are discussed in Section 3.1 of this EIR. The traffic study prepared for the Columbia Elementary School indicates that the project contribution to cumulative traffic impact will be reduced to a level below significance with mitigation measures consisting of roadway improvements identified in this EIR.

Air Quality

Although the project only accommodates growth in the City of Lancaster that will occur whether or not the Columbia Elementary School is built, the school and the new growth it accommodates will cumulatively add VOC and NO_x emissions, which are ozone precursors, to an air basin that exceeds state and national ozone standards. Therefore, the project operational emissions, when added to the emissions from new growth, could cumulatively contribute to a delay in attaining state and national ozone standards in the air basin. The project’s construction emissions, when added to the emissions generated by the rapid development within the east Lancaster area will also result in a significant, albeit temporary, addition of air pollutants to the Mojave Desert Air Basin. Therefore, this impact is considered significant and unavoidable.

The mitigation measures identified in this EIR to lessen the project's air quality impacts will also reduce cumulative impact. Related projects will be required to mitigate impact of pollutant emissions on a project-by-project basis in compliance with standard environmental review requirements. These standard requirements, in conjunction with regional efforts to improve air quality, will work to reduce emissions to the extent possible. However, no feasible mitigations exist to reduce cumulative long-term emissions of the project combined with other development within the region below AVAQMD daily thresholds. Therefore, residual cumulative impact will be significant and unavoidable.

Noise

The project construction will generate noise from construction equipment and activities. Currently, a new residential development is being constructed nearby at the northeast corner of 27th Street East and Avenue J-4 and extending to 30th Street East and Avenue J. The construction of that development is anticipated to be completed by the end of summer 2005. Each individual development project in Lancaster is required to comply with the City noise regulations and implement mitigation measures to reduce noise impact. The City of Lancaster Municipal Code noise regulations (Section 8.24.040) limit construction activities to between sunrise and 8:00 PM on all weekdays and prohibit Sunday construction noise. The City General Plan EIR (1997) found construction noise to be a short-term occurrence, prohibited at night and on Sunday, and thus an adverse but less than significant impact. Nonetheless, since some phases of construction of the Columbia Elementary School could overlap with construction of that nearby residential development, the combined construction noise impact, albeit short-term and intermittent, is considered cumulatively significant. The project's cumulative long-term noise impact from school operations is discussed in Section 3.3, Noise, of this EIR. The analysis indicates that the project's contribution to long-term cumulative noise levels where noise-sensitive receptors are located will result in a less than significant impact.

Biological Resources

The project's cumulative impact on biological resources is discussed in Section 3.5, Biological Resources, of this EIR. The biological impact assessment prepared for the project indicates that the project will not result in a significant cumulative impact on biological resources since the development the project site will not adversely impact established natural, native wildlife habitat resource values, unique vegetation formations or communities. There will be no loss of native plants. The only native wildlife species possibly residing on the site during the breeding season is the desert horned lark, and direct impacts will be prevented by avoiding clearing and construction activities during the breeding season between March 15 and August 1. No agency-listed sensitive plant or animal species are known or expected to occur on the site in a resource dependent, resident, or seasonal breeding basis, and the site overall does not lie within any identifiable wildlife migration, movement or habitat linkage zone.

Public Services and Utilities

The project will not result in a need for new or altered public facilities or utilities (see discussion in Sections 3.7 and 3.8 of this EIR). Thus, the project will not contribute significantly to potential adverse effects from construction of such facilities. The project includes construction of all utility and roadway improvements necessary to serve the project. Impacts related to construction of those improvements were evaluated through the EIR as part of the project and were found to result in significant cumulative air quality and noise impacts. No other major construction of utility improvements will be required as a result of the project, and the project will not contribute to potential adverse effects from construction of such improvements or facilities.

Water Quality

The project's construction will proceed in compliance with all applicable regulations enacted to protect water quality. As discussed in Section 3.4 of this EIR, the project includes full compliance with NPDES requirements for construction and operations as appropriate, including implementing a Storm Water Pollution Prevention Plan (SWPPP) and using Best Management techniques (BMPs). Each project within the City of Lancaster and County of Los Angeles jurisdiction, including the future development on the vacant land surrounding the project site, must fully comply with the NPDES and other water quality regulations as well. This mandatory compliance ensures that potential impacts will be substantially reduced on a project-by-project basis. Therefore, the project will not significantly contribute to cumulative effects on water quality.

Cultural Resources

As discussed in Section 3.6 of this EIR, the project will not affect any cultural resources since no such resources are known to exist on the project site or in close vicinity. Thus, the project will not contribute to a cumulative effect on such resources.

Growth-Inducing Impacts

The CEQA Guidelines require a discussion of "... ways in which the proposed project could foster economic or population growth ... in the surrounding environment," including the project's potential to remove obstacles to population growth. The project is a public elementary school facility necessary to serve the existing and projected resident student population within the EUSD. The residential development in Lancaster will occur whether or not the proposed Columbia Elementary School is built. As such, the project will serve the population growth resulting from land use decisions made by the City of Lancaster and by itself will not induce substantial population growth. Impact will be less than significant.

Significant Irreversible Effects

Development of the proposed project would commit nonrenewable resources during construction and operation. During construction, the use of building materials (e.g., aggregate, sand, cement, steel, glass, etc.) and energy resources (e.g., gasoline, diesel fuel, electricity) largely would be irreversible and irretrievable. Energy would be consumed in processing building materials and for transporting these materials and construction workers.

Facilities developed for Columbia Elementary School can be expected to have a life span of approximately 50 to 70 years. Resources consumed during buildout (such as fuel, building materials, water, etc.) will be in quantities proportional to similar development in southern California. Title 24 (Part 6 of the California Building Standards Code) energy standards are mandatory and will be applied to the Columbia Elementary School construction and operation. Students and staff will consume motor fuel and water; however, these activities are part of normal operations and are not considered a wasteful use of resources. The nonrenewable resources consumed for this project are comparable to the use of resources at other school facilities in the region. Neither short-term nor long-term significant impact on non-renewable resources will result from the project. The project is an essential public school facility needed to serve the rapidly growing residential population in Lancaster and the surrounding areas.

Development of the project could commit future generations to continuing public school uses of the project site. As a result, future generations will experience the project's environmental consequences (discussed throughout this EIR) as well as its benefits.

6.0 References and Preparers of the EIR

References

Antelope Valley Air Pollution Control District. <http://www.avaqmd.ca.gov/airwaves.shtml>.

Biological Impact Assessment for Columbia Elementary School in Lancaster. Frank Hovore and Associates. August 2004.

City of Lancaster General Plan. 1992, as amended.

City of Lancaster General Plan Environmental Impact Report. 1997.

Eastside Union School District web site. <http://www.eastside.k12.ca.us/>.

Revised Draft PEA for the Columbia Elementary School Site. Leighton Consulting, Inc. February 2005.

Traffic Study for Columbia Elementary School. Willdan. August 2004.

Preparers of the EIR

Lead Agency

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Frank Hovore Principal

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Marlund Hale Ph.D. Technical Director

Responsibility: Noise Analysis

7.0 Responses to Comments on Draft EIR

The Draft EIR for Columbia Elementary School was made available for public review and comment pursuant to the State CEQA Guidelines, Section 15073, for a period of 45 days, beginning on March 7, 2005 and ending on April 19, 2005. The District also held a public hearing to receive comments on the Draft EIR on April 12, 2005 at 5:30 p.m. at the District's office located at 45006 North 30th Street East. No oral nor written comments were received at the meeting.

Written comments received during the 45-day public review period for the Draft EIR are presented in chronological order by the date of correspondence. Each comment letter is designated a number, and individual comments within each letter are also numbered. Appropriate revisions to the Draft EIR in response to comments and information received are identified by **shading** the revised text, as illustrated in this sentence.

Written comments were received from the following persons:

1. Dennis Hunter, Assistant Division Engineer, Land Development Division, County of Los Angeles Department of Public Works. April 6, 2005.
2. Laurie Lile, Director of Planning, City of Palmdale. April 8, 2005.

Responses to Written Comments Received

1. Dennis Hunter, Assistant Division Engineer, Land Development Division. County of Los Angeles Department of Public Works. April 6, 2005.

Response 1-1

The District anticipates to initiate an official request for annexation to the Los Angeles County Waterworks District No. 40 following the approval actions on the Columbia Elementary School project.

Response 1-2

The following information has been included in the Final EIR: "In compliance with the existing requirements, the District will pay existing water supply charges, and a new water supply reliability charge pursuant to the adopted County ordinance establishing the charge." This information provides a clarification that with the payment of these fees as part of the mandatory compliance with existing regulations, impact will be less than significant as identified in the EIR.



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April 6, 2005

IN REPLY PLEASE

REFER TO FILE: LD-0

Comment Letter #1

Dr. Michael Wagenleitner
Interim Superintendent
Eastside Union School District
45006 North 30th Street East
Lancaster, CA 93535

Dear Dr. Wagenleitner:

RESPONSE TO DRAFT ENVIRONMENTAL IMPACT REPORT COLUMBIA ELEMENTARY SCHOOL CITY OF LANCASTER

Thank you for the opportunity to provide comments on the Draft Environmental Impact Report (DEIR) for the Columbia Elementary School. We offer the following comments for your consideration:

Water

On page 44, the DEIR states that the Eastside Union School District is pursuing annexation of the project site to Los Angeles County Waterworks District No. 40, which is managed and operated by Public Works. To date, we have only received a request for information regarding annexation. An official request for annexation has not been initiated.

The additional water demand generated by this project will significantly impact the water availability in the area. The proposed mitigation measures included in the DEIR are not considered adequate to address the water shortages. The project will be required to mitigate the impacts on the water supplies through financial participation in projects designed to strengthen the District's water supplies. This may include the payment of existing water supply charges and a new water supply reliability charge.

Comment

1-1

1-2

Dr. Michael Wagenleitner
April 6, 2005
Page 2

If you have any questions regarding the above comments, please contact Mr. Juan Sarda at (626) 458-7151.

Very truly yours,

DONALD L. WOLFE
Acting Director of Public Works

A handwritten signature in black ink, appearing to read "Dennis Hunter". The signature is fluid and cursive, with the first name "Dennis" and last name "Hunter" clearly distinguishable.

DENNIS HUNTER
Assistant Division Engineer
Land Development Division

JMS:jmw

P:\ldpub\CEQA\JUAN\Columbia Elementary School b.doc

2. Laurie Life, Director of Planning, City of Palmdale. April 8, 2005.

Response 2-1

As suggested by the commentor, the proposed school needs to provide an adequate drop off/pick-up area. To address this need, the school's site design provides for a parent drop off/pick-up area within the campus site rather than along the school frontage. The design provides for a drop-off/pick-up area for parents via one-way loop road from East Avenue J-4, and for a separate bus drop off/pick-up area is provided within the site from 27th Street East (as illustrated in Figure 2). This will enhance safety and avoid the potential for conflict between the pedestrian students crossing the street and drop off/pick up vehicles and buses. It will also enhance the efficiency of movement though the site for drop off/ pick up vehicles.



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JAMES A. "JIM" ROOT
Mayor Pro Tem

MIKE DISPENZA
Councilmember

STEVEN D. HOFBAUER
Councilmember

RICHARD J. LOA
Councilmember

April 8, 2005

Comment Letter #2

Ms. Irena Finkelstein
HDR Engineering, Inc.
251 South Lake Avenue, Ste. 1000
Pasadena, CA 91101

RE: Draft Environmental Report for Columbia Elementary School

Dear Ms. Finkelstein:

Comment

Thank you for the opportunity to review the draft Environmental Impact Report for Columbia Elementary School (State Clearinghouse No. 2004081081). The City has reviewed the document and notes that an additional twelve feet of right-of-way along the school frontage to provide drop off/pick-up zones to help reduce the traffic impacts in this area may be useful. No other comments or suggestions have been generated by the review.

2-1

Thank you for the opportunity to comment on the document. If we can be of further assistance, please contact Amy Brislen or me at 661/267-5200.

Sincerely,

Laurie Lile
Director of Planning

Auxiliary aids provided for

communication accessibility

upon 72 hours' notice and request.

Appendices

Appendix A

NOP and Responses

California Home

Thursday

[OPR Home](#) > [CEQAnet Home](#) > [CEQAnet Query](#) > [Search Results](#) > [Document Description](#)

Columbia Elementary School

SCH Number: 2004081081**Type:** NOP**Project Description**

The Eastside Union School District proposes to construct and operate a new elementary school in Lancaster, at East Avenue J-4 and The school will accommodate approximately 850 students.

Project Lead Agency

Eastside Union School District

Contact Information

Primary Contact:
Michael Wagenleitner
Eastside Union School District
661-952-1200
45006 North 30th Street East
Lancaster, CA 93535

Project Location

County: Los Angeles
City: Lancaster
Region:
Cross Streets: East Avenue J-4 and 27th Street East
Parcel No: various
Township:
Range:
Section:
Base:
Other Location Info:

Proximity To

Highways:
Airports:
Railways: Metrolink
Waterways:
Schools: various
Land Use: Vacant site / Public School

Development Type

Educational

Local Action

Site Plan, Other Action

Project Issues

Aesthetic/Visual, Agricultural Land, Air Quality, Archaeologic-Historic, Cumulative Effects, Drainage/Absorption, Flood Plain/Flooding, Hazard, Geologic/Seismic, Growth Inducing, Landuse, Minerals, Noise, Population/Housing Balance, Public Services, Recreation/Par Schools/Universities, Sewer Capacity, Soil Erosion/Compaction/Grading, Solid Waste, Toxic/Hazardous, Traffic/Circulation, Vegetatio Water Supply, Wetland/Riparian, Wildlife

Reviewing Agencies (Agencies in **Bold Type** submitted comment letters to the State Clearinghouse)

Resources Agency; Regional Water Quality Control Bd., Region 6 (Victorville); Department of Parks and Recreation; Native American Commission; Office of Historic Preservation; Department of Water Resources; **Department of Fish and Game, Region 5**; California Caltrans, District 7; Department of Toxic Substances Control

Date Received: 8/12/2004 **Start of Review:** 8/12/2004 **End of Review:** 9/10/2004

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PROOF OF PUBLICATION

(2015.5 C.C.P.)

STATE OF CALIFORNIA

County of Los Angeles

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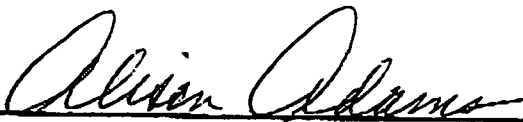
Notice Type: NOTICE OF PREPARATION OF ENVIRONMENTAL IMPACT REPORT FOR COLUMBIA ELEMENTARY SCHOOL IN LANCASTER

The space above for filing stamp only

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the printer of the Antelope Valley Press, a newspaper of general circulation, printed and published daily in the city of Palmdale, County of Los Angeles, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Los Angeles, State of California, under date of October 24, 1931, Case Number 328601; Modified Case Number 657770 April 11, 1956; also operating as the Ledger-Gazette, adjudicated a legal newspaper June 15, 1927, by Superior Court decree No. 224545; also operating as the Desert Mailer News, formerly known as the South Antelope Valley Foothill News, adjudicated a newspaper of general circulation by the Superior Court of the County of Los Angeles, State of California on June 15, 1967, Case Number NOC564 and adjudicated a newspaper of general circulation for the City of Lancaster, State of California on January 26, 1990; that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

August 13, 2004

I certify (or declare) under penalty of perjury that the fore-going is true and correct.


Signature

Dated: August 13, 2004
Executed at Palmdale, California

ANTELOPE VALLEY PRESS
37404 SIERRA HWY., PALMDALE CA 93550
Telephone (661)267-4112/Fax (661)947-4870

NOTICE OF PREPARATION OF ENVIRONMENTAL IMPACT REPORT FOR COLUMBIA ELEMENTARY SCHOOL IN LANCASTER

The Eastside Union School District (EUSD) will prepare an Environmental Impact Report (EIR) for a new Columbia Elementary School. Due to rapid development in Lancaster and the surrounding areas, a new elementary school is needed to accommodate the educational needs of the rapidly growing population within the District. Therefore, EUSD proposes to construct and operate a new elementary school to serve approximately 850 students at a site located at East Avenue J-4 and 27th Street East, in Lancaster.

The EUSD completed an Initial Study for the project which indicates that the project may have significant environmental impacts with regard to traffic, air quality, noise, and other issues. All these issues will be addressed in the EIR being prepared by the District. The Initial Study is on file at the EUSD District Office located at 45008 North 30th Street East, Lancaster, CA 93335, and the Public Library located at 804 Lancaster Boulevard in Lancaster. The Initial Study documents will be available for a 30-day public review during regular business hours, beginning on August 12, 2004. Any person wishing to comment may submit their comments by no later than September 10, 2004 to Dr. Greg Riccio, Superintendent, at the address indicated above.

Published: 8/13/04

Initial Study

Columbia Elementary School

Eastside Union School District

August 2004

Lead Agency
Eastside Union School District
45006 North 30th Street East
Lancaster, CA 93535
(661) 952-1200

Consultant to Lead Agency:
HDR Engineering, Inc.
251 South Lake Avenue, Suite 1000
Pasadena, CA 91101

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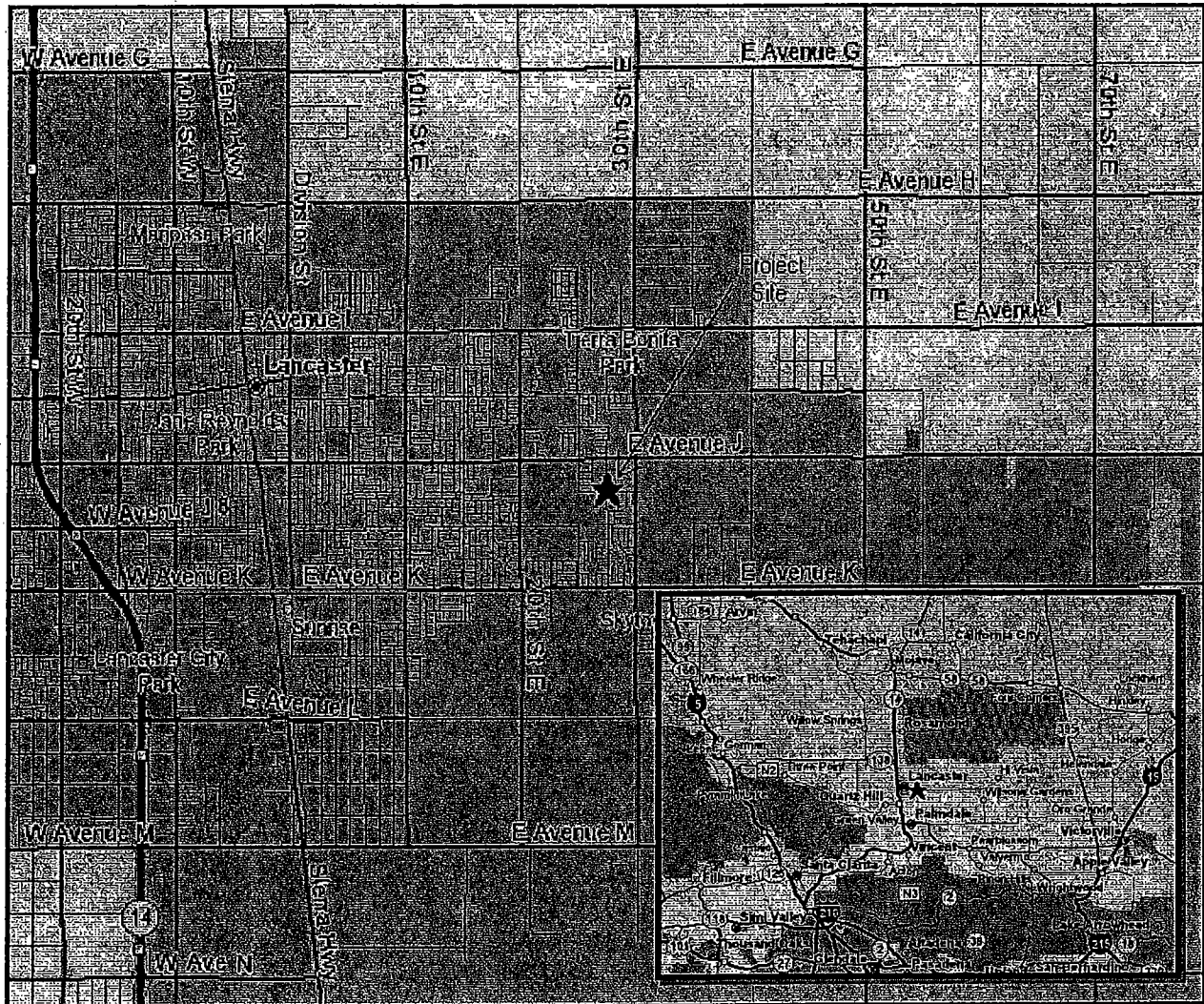
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Environmental Checklist Form

1. **Project Title:** Columbia Elementary School
2. **Lead Agency Name and Address:** Eastside Union School District
45006 North 30th Street East
Lancaster, CA 93535
3. **Contact Person and Phone Number:** Dr. Michael Wagenleitner
Interim Superintendent
Business Services
Eastside Union School District
(661) 952-1200
4. **Project Location:** East Avenue J-4 and 27th Street East,
Lancaster, Los Angeles County
5. **Project Sponsor's Name and Address:** Same as Lead Agency
6. **General Plan Designation:** Non-Urban Residential/Public School
7. **Zoning:** Semi-Rural Residential/Open Space
8. **Description of Project:**

The Eastside Union School District (EUSD) proposes to construct and operate a new elementary school in Lancaster. EUSD currently operates three elementary schools and one middle school serving nearly 3,000 students in grades K through 8, and a new elementary school is needed to accommodate the educational needs of the rapidly growing population in the Lancaster area. The school will be located at the intersection of East Avenue J-4 and 27th Street East (see Figure 1), and will accommodate approximately 850 students.

Project Location Map
Columbia Elementary School
Figure 1



Existing Conditions and Surrounding Uses:

The project site consists of approximately 12.5 acres of vacant land. Residential neighborhoods and vacant land abound the site.

Project Characteristics:

This elementary school will serve students in the K through 4th grades. At buildout, the school will accommodate approximately 850 students and 35 staff. The school will operate on a typical schedule from 9:00 A.M. to 3:00 P.M. Figure 2 illustrates the project site plan.

Access and Parking:

Access to the school will be provided by 27th Street East and Avenue J-4. All parking for staff and visitors will be provided on site.

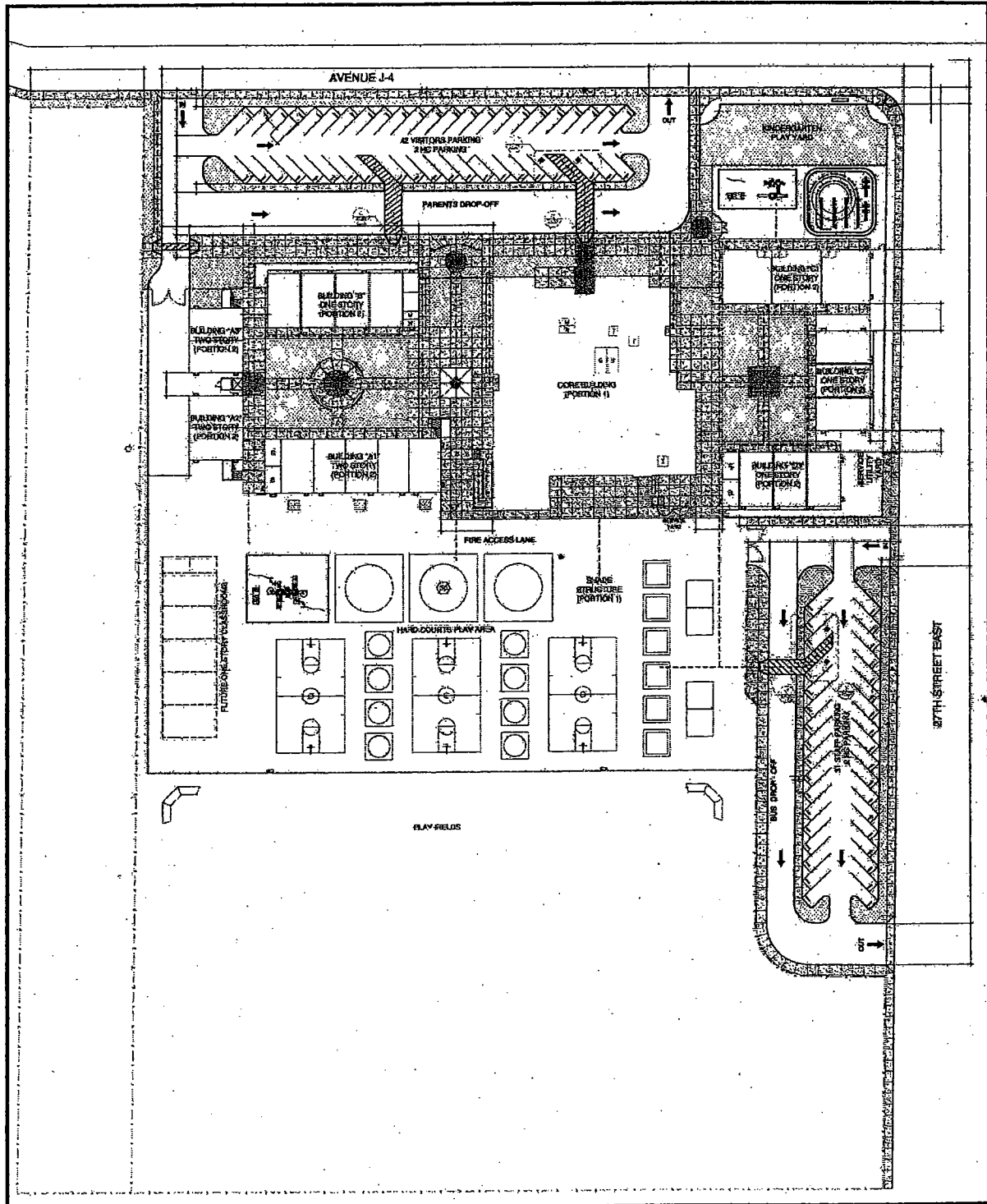
Construction:

Site preparation, grading, and construction necessary to begin operation of the school is anticipated to begin in August 2006.

9. Surrounding Land Uses and Setting:

Surrounding land uses include residential neighborhoods and vacant land.

Site Plan Columbia Elementary School Figure 2



10. Other public agencies whose approval is required:

Division of the State Architect	Approval of building plan, including soils and foundation engineering
California Department of Toxic Substances Control	Certificate of No Further Action
California Department of Education	Site and plan approval
State Allocation Board	Funding approval
Office of Public School Construction	School project approval
Los Angeles County Waterworks District	Approval of permits for water service
Los Angeles County Sanitation District	Approval of permits for sewer service
Los Angeles County Fire Department	Fire safety review and approval
City of Lancaster	Permits for off-site improvements

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|---|--|--|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology /Soils |
| <input checked="" type="checkbox"/> Hazards & Hazardous Materials | <input checked="" type="checkbox"/> Hydrology / Water Quality | <input type="checkbox"/> Land Use / Planning |
| <input type="checkbox"/> Mineral Resources | <input checked="" type="checkbox"/> Noise | <input type="checkbox"/> Population / Housing |
| <input checked="" type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input checked="" type="checkbox"/> Transportation/Traffic |
| <input checked="" type="checkbox"/> Utilities / Service Systems | <input checked="" type="checkbox"/> Mandatory Findings of Significance | |

Determination

On the basis of this initial evaluation:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☒ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.


Signature

7-21-04
Date

Issues:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
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I. AESTHETICS -- Would the project:

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a) Have a substantial adverse effect on a scenic vista? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

a and b. The project site is surrounded by flat land and is not located adjacent to any hillsides or scenic highways. The school will have permanent classrooms, associated facilities, and surface parking. All of the buildings will be one- or two-stories in height. Currently, the site is vacant and free from structures, thus no historic buildings are present. No natural topographical features, rock outcroppings, washes, sand sheets, or other surface features are located on the site. No adverse impact will result.

c. The project site consists of undeveloped land. The site will be developed with permanent school facilities, and a playground. The scale and visual character one- to two-story school buildings will be compatible with the scale and visual character of the existing residential developments nearby, as well as with the future residential development on the currently vacant land in the school's vicinity. That land is designated for single family residential development. Such future development will continue the existing pattern of urban development with one- and two-story structures in the area. The project will have a beneficial effect of introducing landscaping into the area where none currently exists. Impact will be less than significant.

d. The site is currently vacant and does not include lighting. The project will introduce general lighting on the site during the early morning hours, evening hours, and during special events at the school. Security lighting will be provided during the night. Lighting will be limited to conserve energy and minimize off-site illumination. The exterior security lights will be focused onto the site and away from the surrounding uses. Low-glare, cut-off, and shielded lights will be used as appropriate. Impact will be less than significant.

Issues:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
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II. AGRICULTURE RESOURCES: In

determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

☐
☐
☐
☒

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

☐
☐
☐
☒

c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?

☐
☐
☐
☒

a through c. The site does not contain prime farmland, unique farmland, or farmland of statewide importance. No Williamson Act contracts exist for the site, and the site is not zoned for agricultural use. No agricultural land adjoins the site. The proposed elementary school does not involve any other changes to the existing environment that could result in conversion of farmland to non-agricultural use. No adverse impact will result.

III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?

☐
☐
☐
☒

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

☐
☐
☒
☐

Issues:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a. The new school will serve current and future residents of the area and will not result in additional population growth beyond that anticipated in the City of Lancaster General Plan or in Southern California Association of Government (SCAG) projections. Since the regional Air Quality Management Plan (AQMP) is based on SCAG's growth projections, the project does not conflict with the AQMP. No adverse impact will result.

b and c. The project site is located within the Mojave Desert Air Basin. Air quality in the Basin exceeds State and federal ambient air quality standards for ozone and fine particulate matter (PM10). The project will result in vehicle trips and construction activities that will contribute to air pollutant emissions within the Basin. These issues will be analyzed in the EIR.

d. The school will accommodate approximately 850 students, resulting in a relatively modest traffic volume, particularly since a number of students are anticipated to travel by school bus, rather than a single car. No access constraints that could result in heavily congested conditions and substantial pollutant concentrations from idling vehicles in the immediate vicinity of sensitive receptors, are anticipated at the present time. Nonetheless, this issue will be further addressed in the EIR based on information provided in a traffic study that will be completed as part of the EIR analysis.

e. The project is a elementary school that typically does not create odors in its operations. No adverse impact will result.

IV. BIOLOGICAL RESOURCES -- Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

☒ ☐ ☐ ☐

Issues:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a and b. The project site is relatively small in size and is located in a rapidly developing area of Lancaster. However, since vacant sites within the Antelope Valley have the potential to contain vegetation supporting some sensitive plant and animal species, these issues will be analyzed in the EIR.

c. No wetlands are present on or near the project site. No adverse impact will result.

d. The site does not lie within any part of an identifiable wildlife corridor; no adverse impact will result.

e and f. No habitat or natural community conservation plans are known to apply to the site; therefore, the project will not conflict with such plans. No adverse impact will result.

Issues:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
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V. CULTURAL RESOURCES -- Would the project:

- | | | | | |
|---|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Disturb any human remains, including those interred outside of formal cemeteries? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

a. The site is vacant land. No structures are located on the site, and no adverse impact will result.

b and c. The project site is located in the Antelope Valley, an area known to contain archaeological and paleontological resources. Therefore, the potential exists for the site to contain such undiscovered resources. These issues will be examined in the EIR.

d. Compliance with existing standard CEQA requirements includes halting construction work in an unlikely event that human remains are uncovered and allowing a qualified archaeologist, coroner, and/or Native American representative to evaluate the find and make recommendations (pursuant to CEQA Guidelines Section 15064.5[e]). Taking these actions, if required, will result in a less than significant impact.

VI. GEOLOGY AND SOILS -- Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

- i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Issues:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

i through iii. The project site, like most of the southern California region, will be subject to strong ground shaking in the event of a major earthquake. The project site is not included within any Earthquake Fault Zones as delineated by the Alquist-Priolo Earthquake Fault Zoning Act (1994). According to the State of California's Seismic Hazard Zones Report for the Lancaster East Quadrangle, there are no known areas of previous or historical occurrences of landslides or liquefaction surrounding the project site. However, local geotechnical and ground water conditions indicate a potential for liquefaction. Therefore, site-specific engineering techniques as outlined in items c and d below will be implemented in the school design and construction, ensuring that impact will be less than significant.

iv. Given the flatness of the site, hazards from slope instability, landslides, or debris flows are considered remote. No adverse impact will result.

b. Construction of the school involves minor grading that will not result in the removal of substantial amounts of topsoil from the site. An on-site drainage plan will be implemented to limit on-site erosion during construction. The project will result in structures, asphalt, and foliage covering the site. The provision of drainage facilities and foliage will limit the potential for on-going erosion. Impact will be less than significant.

Issues:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
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c and d. The site is not known to be subject to instability, subsidence, or lateral spreading. Nonetheless, the school buildings will be constructed in accordance with Title 5 California Code of Regulations, Chapter 1 of Division 13, Section 14010 regarding standards for school site selection. In accordance with this guidance, the school facilities will be constructed using engineering techniques specifically selected for the on-site soils conditions. These techniques may include recompaction of soils, exterior and interior footings, interior slabs-on-grade, support for pavement, foundations, and engineering fill, among others. The site may be subject to liquefaction. Construction in compliance with established engineering standards and using established engineering techniques will ensure that impact will be less than significant.

e. The project includes sewer lines that connect to existing facilities. No septic tanks or alternative waste water disposal systems are needed for the project. No adverse impact will result.

VII. HAZARDS AND HAZARDOUS MATERIALS -- Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Issues:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a through d. The project is an elementary school that does not involve the transport, use, or disposal of hazardous materials. On-site use and storage of hazardous materials will be limited to small amounts of everyday household cleaners, common chemicals used for landscaping and maintenance, and common chemicals and other substances used for science classes. The limited use of these common hazardous materials is subject to EUSD guidelines. However, since the site was used for chicken farming in the past, a Phase II Environmental Assessment is being completed for the site. The findings of the assessment will be addressed in the EIR.

e and f. The project site is located approximately 2.5 miles north of the boundary of the U.S. Air Force Plant 42, outside the airport's accident potential zones. The school's one- to two-story buildings will not interfere with the airport's height limitations. The site is not located within the vicinity of a private airstrip. Impact will be less than significant.

g. The project is a elementary school facility that will not interfere with applicable emergency response plans or emergency evacuation plans. The project's emergency evacuation plan will be subject to review and approval by the County Fire Department, in accordance with existing requirements. The school will likely serve as a designated evacuation center or relief shelter during emergency situations. School District personnel will coordinate with appropriate public agencies and assist with emergency operations. The provision of such a facility is considered a beneficial effect of the proposed project. No adverse impact will result.

h. The project site is located in a rapidly urbanizing area of the City of Lancaster and no wildlands are located within close proximity to the site. The school buildings will be equipped with all necessary fire protection devices in accordance with State requirements for school facilities, including fire alarm and sprinkler systems. No adverse impact will result.

Issues:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
---------	--------------------------------------	---	------------------------------------	--------------

VIII. HYDROLOGY AND WATER QUALITY

-- Would the project:

a) Violate any water quality standards or waste discharge requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Issues:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a. The quality of stormwater runoff is regulated under the National Pollution Discharge Elimination System (NPDES). The EIR will address how the EUSD will comply with NPDES permit requirements.

b. No wells currently exist on the site and no drilling of wells are proposed as part of school construction or operation. No significant impact will result.

c through f. The project will cover portions of the site with buildings and parking, which are impermeable surfaces. The remainder of the site will be used for athletic fields and landscaping and remain permeable surfaces. This will not result in a substantial alteration of existing drainage patterns nor an increase in runoff that would result in flooding on- or off-site. Runoff from the site will be conveyed to existing storm drainage facilities, and all necessary on-site drainage improvements are included as part of the project. The project does not alter the course of any stream or river, as none are on or near the site. Impact will be less than significant.

g and h. The project does not include any housing. The site is not located within a 100-year flood hazard area as mapped on the federal Flood Insurance Rate Map and illustrated in the City General Plan. No adverse impact will result.

i. The Little Rock Wash is located approximately 3 miles east of the site, Piute Ponds is about 8 miles northwest of the site, and Lake Palmdale reservoir is approximately 9 miles south of the site. The reservoir is operated by the Palmdale Water District as a water storage facility, with a dam along the lake's western perimeter. The school site is located outside the inundation area for the dam delineated by the Governor's Office of Emergency Services. Impact will be less than significant.

j. The City of Lancaster is located inland and is not subject to tsunamis. No bodies of water that might result in a seiche are located upstream from the site. The project site is located on flat land, such that mudflows are not a danger in the area. No adverse impact will result.

Issues:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
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IX. LAND USE AND PLANNING -- Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Physically divide an established community? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Conflict with any applicable habitat conservation plan or natural community conservation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

a. The school will be built on vacant land. The site is bounded by East Avenue J-4 and 27th Street East. No communities that might be divided are located on this land. All existing land uses surrounding the site are accessible via roads and accessways. No adverse impact will result.

b. The project site is designate for public school uses, therefore, no conflict with the existing land use plans will result. No adverse impact will result.

c. No habitat or natural community conservation plans are known to apply to the site; therefore, the project will not conflict with such plans. No adverse impact will result.

X. MINERAL RESOURCES -- Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

a and b. The project site is not known to contain important mineral resources. Therefore, the project is not expected to result in the loss of any known mineral resource. No adverse impact will result.

Issues:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
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XI. NOISE -- Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

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b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

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c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

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d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

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e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

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f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

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a through d. Vehicles traveling to and from the school will generate traffic noise, and the school construction will generate short-term noise. Therefore, these issues will be analyzed in the EIR.

e and f. The project site is located approximately 2.5 miles north of the boundary of the U.S. Air Force Plant 42, and outside the airport's noise contours. The site is not located within two miles of a private airstrip. Impact will be less than significant.

Issues:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
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XII. POPULATION AND HOUSING -- Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

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b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

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c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

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a. The project is an elementary school necessary to serve the existing and projected resident student population within the EUSD. As such, it will serve the population growth resulting from land use decisions made by the City, and by itself will not induce substantial population growth. Impact will be less than significant.

b and c. The project site is vacant land; no housing will be removed or people displaced as a result of the project. No adverse impact will result.

XIII. PUBLIC SERVICES

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities; need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?

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Police protection?

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Schools?

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Parks?

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Issues:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Since the project will increase the level of activity at the site and vehicular and pedestrian traffic in the project area, the project will generate additional demand for fire and police protection services. Safety and security issues associated with the project, particularly with regards to the residential uses near the site, will be discussed in the EIR.

The project is an elementary school that will provide needed educational services for the area's residents. Impact will be beneficial and no adverse impact will result.

The project is an elementary school that will not result in the need for any off-site recreational or park facilities. The school includes playground facilities on-site for use by the students. No adverse impact will result.

No substantial population growth will occur as a result of the proposed project, and no other public facilities will be impacted.

XIV. RECREATION

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

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b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

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a and b. The project is an elementary school that will not result in additional population to the City and thus will not increase the use of existing neighborhood and regional parks or other recreational facilities. The school includes recreational facilities for use by the students and no other recreational facilities will be required. No adverse impact will result.

XV. TRANSPORTATION/TRAFFIC -- Would the project:

a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

☒ ☐ ☐ ☐

Issues:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location which results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a and b. The project will generate vehicle trips that may impact intersections and/or street segments in the project vicinity. This issue will be analyzed in the EIR.

c. The project is an elementary school and will not increase air traffic levels or result in a change in air traffic patterns. No adverse impact will result.

d. The school design does not include any features that could create sharp curves or other safety hazard, or incompatible uses that could create such hazards. No significant impact will result.

e. In compliance with existing regulations, the required emergency access that accommodates fire trucks and equipment, including minimum driveway widths, turning radius, and access to structures will be provided at the site. No adverse impact will result.

f. The school design includes on-site parking for students, staff, and visitors. No significant impact will result.

g. The school will serve the nearby residential neighborhoods and a number of students are expected to use a school bus for transportation. The project is supportive of alternative transportation; therefore, no adverse impact will result.

Issues:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
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XVI. UTILITIES AND SERVICE SYSTEMS --

Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, State, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a and b. The project is an elementary school that does not generate unusual or large quantities of wastewater that could violate existing water quality standards or wastewater treatment requirements or require construction of new treatment facilities. Impact will be less than significant.

c through f. The project will generate additional demand on the existing local drainage, sewer, water, and landfill facilities and water supply resources. These issues will be evaluated in the EIR.

g. The EUSD complies with all applicable federal, State, and local statutes and regulations related to solid waste, including recycling requirements. No adverse impact will result.

Issues:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
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XVII. MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

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b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

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c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

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a. Since the project site is undeveloped land located in Antelope Valley, there is a potential that some sensitive plant or animal species may be present. These issues will be examined in the EIR.

b. The project will contribute to cumulative effects of urban growth occurring in Lancaster the Valley with regards to traffic, air quality, noise, and other environmental factors. This issue will be examined in the EIR.

c. The project is the construction and operation of a new elementary school to serve the east side of Lancaster and relieve overcrowding in existing elementary school facilities. The project will accommodate future elementary school age students within the rapidly developing Antelope Valley, and thus, will result in long-term beneficial effects to residents of Lancaster and the region.

References

Antelope Valley Air Pollution Control District. <http://www.avaqmd.ca.gov/airwaves.shtml>.

City of Lancaster. City of Lancaster General Plan. 1992.

Eastside Union School District web site. <http://www.eastside.k12.ca.us/>.

Flood Hazard Map, ESRI/FEMA Project Impact Hazard Information and Awareness Site, www.esri.com/hazards.

Inundation map for Lake Palmdale dam from Governor's Office of Emergency Services, www.oes.ca.gov.

Preparers of the Initial Study

Lead Agency

Eastside Union School District
45006 North 30th Street East
Lancaster, CA 93535

Contact Person:
Dr. Michael Wagenleitner, Interim Superintendent
Phone: (661) 952-1200

Consultant to the Lead Agency

HDR Engineering, Inc.
251 South Lake Avenue, Suite 1000
Pasadena, CA 91101

Irena Finkelstein, AICP	Project Manager
Justin Purewal	Environmental Analyst

Phone: (626) 584-1700
Fax: (626) 584-1750



COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

JAMES F. STAHL
Chief Engineer and General Manager

August 24, 2004

File No: 14-00.04-00

Dr. Michael Wagenleitner
Interim Superintendent
Eastside Union School District
45006 North 30th Street East
Lancaster, CA 93535

Dear Dr. Wagenleitner:

Columbia Elementary School in Lancaster

The County Sanitation Districts of Los Angeles County (Districts) received a Notice of Preparation of a Draft Environmental Impact Report for the subject project on August 11, 2004. The proposed development is located within the jurisdictional boundaries of District No. 14. We offer the following comments regarding sewerage service:

1. The wastewater flow originating from the proposed project will discharge to a local sewer line, which is not maintained by the Districts, for conveyance to the Districts' Trunk "C" Trunk Sewer, located in Avenue J-8 at 27th Street East. This 15-inch diameter trunk sewer has a design capacity of 1.48 million gallons per day (mgd) and conveyed a peak flow of 0.4 mgd when last measured in 2004.
2. The wastewater generated by the proposed project will be treated at the Lancaster Water Reclamation Plant, which has a design capacity of 16 mgd and currently processes an average flow of 13.3 mgd.
3. The expected average wastewater flow from the project site is 17,000 gallons per day.
4. The Districts are empowered by the California Health and Safety Code to charge a fee for the privilege of connecting (directly or indirectly) to the Districts' Sewerage System or increasing the existing strength and/or quantity of wastewater attributable to a particular parcel or operation already connected. This connection fee is required to construct an incremental expansion of the Sewerage System to accommodate the proposed project, which will mitigate the impact of this project on the present Sewerage System. Payment of a connection fee will be required before a permit to connect to the sewer is issued. A copy of the Connection Fee Information Sheet is enclosed for your convenience. For more specific information regarding the connection fee application procedure and fees, please contact the Connection Fee Counter at extension 2727.
5. In order for the Districts to conform to the requirements of the Federal Clean Air Act (CAA), the design capacities of the Districts' wastewater treatment facilities are based on the regional growth

Dr. Michael Wagenleitner

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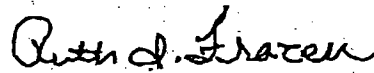
August 24, 2004

forecast adopted by the Southern California Association of Governments (SCAG). Specific policies included in the development of the SCAG regional growth forecast are incorporated into the Air Quality Management Plan, which is prepared by the South Coast Air Quality Management District in order to improve air quality in the South Coast Air Basin as mandated by the CAA. All expansions of Districts' facilities must be sized and service phased in a manner that will be consistent with the SCAG regional growth forecast for the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial. The available capacity of the Districts' treatment facilities will, therefore, be limited to levels associated with the approved growth identified by SCAG. As such, this letter does not constitute a guarantee of wastewater service, but is to advise you that the Districts intend to provide this service up to the levels that are legally permitted and to inform you of the currently existing capacity and any proposed expansion of the Districts' facilities.

If you have any questions, please contact the undersigned at (562) 699-7411, extension 2717.

Very truly yours,

James F. Stahl



Ruth L. Frazen
Engineering Technician
Planning & Property Management Section

RIF:rf

Enclosure

389758.1

**INFORMATION SHEET FOR APPLICANTS
PROPOSING TO CONNECT OR INCREASE THEIR DISCHARGE TO
THE COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY SEWERAGE SYSTEM**

THE PROGRAM

The County Sanitation Districts of Los Angeles County are empowered by the California Health and Safety Code to charge a fee for the privilege of connecting to a Sanitation District's sewerage system. Your connection to a City or County sewer constitutes a connection to a Sanitation District's sewerage system as these sewers flow into a Sanitation District's system. The County Sanitation Districts of Los Angeles County provide for the conveyance, treatment, and disposal of your wastewater. **PAYMENT OF A CONNECTION FEE TO THE COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY WILL BE REQUIRED BEFORE A CITY OR THE COUNTY WILL ISSUE YOU A PERMIT TO CONNECT TO THE SEWER.**

I. WHO IS REQUIRED TO PAY A CONNECTION FEE?

1. Anyone connecting to the sewerage system for the first time for any structure located on a parcel(s) of land within a County Sanitation District of Los Angeles County.
2. Anyone increasing the quantity of wastewater discharged due to the construction of additional dwelling units on or a change in land usage of a parcel already connected to the sewerage system.
3. Anyone increasing the improvement square footage of a commercial or institutional parcel by more than 25 percent.
4. Anyone increasing the quantity and/or strength of wastewater from an industrial parcel.
5. If you qualify for an Ad Valorem Tax or Demolition Credit, connection fee will be adjusted accordingly.

II. HOW ARE THE CONNECTION FEES USED?

The connection fees are used to provide additional conveyance, treatment, and disposal facilities (capital facilities) which are made necessary by new users connecting to a Sanitation District's sewerage system or by existing users who significantly increase the quantity or strength of their wastewater discharge. The Connection Fee Program insures that all users pay their fair share for any necessary expansion of the system.

III. HOW MUCH IS MY CONNECTION FEE?

Your connection fee can be determined from the Connection Fee Schedule specific to the Sanitation District in which your parcel(s) to be connected is located. A Sanitation District boundary map is attached to each corresponding Sanitation District Connection Fee Schedule. Your City or County sewer permitting office has copies of the Connection Fee Schedule(s) and Sanitation District boundary map(s) for your parcel(s). If you require verification of the Sanitation District in which your parcel is located, please call the Sanitation Districts' information number listed under Item IX below.

IV. WHAT FORMS ARE REQUIRED*?

The Connection Fee application package consists of the following:

1. Information Sheet for Applicants (this form)
2. Application for Sewer Connection

3. Connection Fee Schedule with Sanitation District Map (one schedule for each Sanitation District)

*Additional forms are required for Industrial Dischargers.

V. WHAT DO I NEED TO FILE?

1. Completed Application Form
2. A complete set of architectural blueprints (not required for connecting one single family home)
3. Fee Payment (checks payable to: County Sanitation Districts of Los Angeles County)
4. Industrial applicants must file additional forms and follow the procedures as outlined in the application instructions

VI. WHERE DO I SUBMIT THE FORMS?

Residential, Commercial, and Institutional applicants should submit the above listed materials either by mail or in person to:

County Sanitation Districts of Los Angeles County
Connection Fee Program, Room 130
1955 Workman Mill Road
Whittier, CA 90601

Industrial applicants should submit the appropriate materials directly to the City or County office which will issue the sewer connection permit.

VII. HOW LONG DOES IT TAKE TO PROCESS MY APPLICATION?

Applications submitted by mail are generally processed and mailed within three working days of receipt. Applications brought in person are processed on the same day provided the application, supporting materials, and fee is satisfactory. Processing of large and/or complex projects may take longer.

VIII. HOW DO I OBTAIN MY SEWER PERMIT TO CONNECT?

An approved Application for Sewer Connection will be returned to the applicant after all necessary documents for processing have been submitted. Present this approved-stamped copy to the City or County Office issuing sewer connection permits for your area at the time you apply for actual sewer hookup.

IX. HOW CAN I GET ADDITIONAL INFORMATION?

If you require assistance or need additional information, please call the County Sanitation Districts of Los Angeles County at (562) 699-7411, extension 2727.

X. WHAT ARE THE DISTRICTS' WORKING HOURS?

The Districts' offices are open between the hours of 7:00 a.m. and 4:00 p.m., Monday through Thursday, and between the hours of 7:00 a.m. and 3:00 p.m. on Friday, except holidays. When applying in person, applicants must be at the Connection Fee counter at least 30 minutes before closing time.

**DEPARTMENT OF FISH AND GAME**

<http://www.dfg.ca.gov>
4949 Viewridge Avenue
San Diego, CA 92123
(858) 467-4201



September 2, 2004

Mr. Michael Wagenleitner
Eastside Union School District
40006 North 30th Street East
Lancaster, CA 93536

**Notice of Preparation for an Environmental Impact Report for
Columbia Elementary School
SCH# 2004081081, Los Angeles County**

Dear Mr. Wagenleitner:

The Department of Fish and Game (Department) appreciates this opportunity to comment on the above-referenced project, relative to impacts to biological resources. The proposed 12.5 acre project involves the construction of an elementary school at East Avenue J-4 and 27th Street East, City of Lancaster within a vacant lot.

To enable Department staff to adequately review and comment on the proposed project we recommend the following information, where applicable, be included in the Draft Environmental Impact Report:

1. A complete, recent assessment of flora and fauna within and adjacent to the project area, with particular emphasis upon identifying endangered, threatened, and locally unique species and sensitive habitats.
 - a. A thorough recent assessment of rare plants and rare natural communities, following the Department's Guidelines for Assessing Impacts to Rare Plants and Rare Natural Communities (Attachment 1).
 - b. A complete, recent assessment of sensitive fish, wildlife, reptile, and amphibian species. Seasonal variations in use of the project area should also be addressed. Recent, focused, species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with the Department and U.S. Fish and Wildlife Service.
 - c. Rare, threatened, and endangered species to be addressed should include all those which meet the California Environmental Quality Act (CEQA) definition (see CEQA Guidelines, Section 15380).
 - d. The Department's California Natural Diversity Data Base in Sacramento should be contacted at (916) 327-5960 to obtain current information on any previously reported

sensitive species and habitats, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code. Also, any Significant Ecological Areas (SEAs) or Environmentally Sensitive Habitats (ESHs) or any areas that are considered sensitive by the local jurisdiction that are located in or adjacent to the project area must be addressed.

2. A thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts. This discussion should focus on maximizing avoidance, and minimizing impacts.
 - a. CEQA Guidelines, Section 15125(a), direct that knowledge of the regional setting is critical to an assessment of environmental impacts and that special emphasis should be placed on resources that are rare or unique to the region.
 - b. Project impacts should also be analyzed relative to their effects on off-site habitats and populations. Specifically, this should include nearby public lands, open space, adjacent natural habitats, and riparian ecosystems. Impacts to and maintenance of wildlife corridor/movement areas, including access to undisturbed habitat in adjacent areas, should be fully evaluated and provided. The analysis should also include a discussion of the potential for impacts resulting from such effects as increased vehicle traffic and outdoor artificial lighting.
 - c. A cumulative effects analysis should be developed as described under CEQA Guidelines, Section 15130. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.
 - d. Impacts to migratory wildlife affected by the project should be fully evaluated. This can include such elements as migratory butterfly roost sites and neo-tropical bird and waterfowl stop-over and staging sites. All migratory nongame native bird species are protected by international treaty under the Federal Migratory Bird Treaty Act (MBTA) of 1918 (50 C.F.R. Section 10.13). Sections 3503, 3503.5 and 3513 of the California Fish and Game Code prohibit take of birds and their active nests, including raptors and other migratory nongame birds as listed under the MBTA.
 - e. Impacts to all habitats from City or County required Fuel Modification Zones (FMZ). Areas slated as mitigation for loss of habitat shall not occur within the FMZ.
 - f. Proposed project activities (including disturbances to vegetation) should take place outside of the breeding bird season (February 1- September 15) to avoid take (including disturbances which would cause abandonment of active nests containing eggs and/or young). If project activities cannot avoid the breeding bird season, nest surveys should be conducted and active nests should be avoided and provided with a minimum buffer as determined by a biological monitor (the Department recommends a minimum 500-foot buffer for all active raptor nests).
 - g. Impacts to sensitive wildlife species such as burrowing owls and other birds of prey which utilize disturbed vacant areas within suburban areas for nesting and/or feeding, should be evaluated.
3. A range of alternatives should be analyzed to ensure that alternatives to the proposed project are fully considered and evaluated. A range of alternatives which avoid or otherwise minimize impacts to sensitive biological resources including wetlands/riparian habitats, alluvial scrub, coastal sage scrub, native woodlands, etc. should be included.

Specific alternative locations should also be evaluated in areas with lower resource sensitivity where appropriate.

- a. Mitigation measures for project impacts to sensitive plants, animals, and habitats should emphasize evaluation and selection of alternatives which avoid or otherwise minimize project impacts. Compensation for unavoidable impacts through acquisition and protection of high quality habitat elsewhere should be addressed.
 - b. The Department considers Rare Natural Communities as threatened habitats having both regional and local significance. Thus, these communities should be fully avoided and otherwise protected from project-related impacts (Attachment 2).
 - c. The Department generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts to rare, threatened, or endangered species. Department studies have shown that these efforts are experimental in nature and largely unsuccessful.
4. A California Endangered Species Act (CESA) Permit must be obtained, if the project has the potential to result in "take" of species of plants or animals listed under CESA, either during construction or over the life of the project. CESA Permits are issued to conserve, protect, enhance, and restore State-listed threatened or endangered species and their habitats. Early consultation is encouraged, as significant modification to the proposed project and mitigation measures may be required in order to obtain a CESA Permit. Revisions to the Fish and Game Code, effective January 1998, require that the Department issue a separate CEQA document for the issuance of a CESA permit unless the project CEQA document addresses all project impacts to listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of a CESA permit. For these reasons, the following information is requested:
 - a. Biological mitigation monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA Permit.
 - b. A Department-approved Mitigation Agreement and Mitigation Plan are required for plants listed as rare under the Native Plant Protection Act.
5. The Department opposes the elimination of watercourses and/or their channelization or conversion to subsurface drains. All wetlands and watercourses, whether intermittent, ephemeral, or perennial, must be retained and provided with substantial setbacks which preserve the riparian and aquatic habitat values and maintain their value to on-site and off-site wildlife populations.
 - a. The Department requires a Streambed Alteration Agreement (SAA), pursuant to Section 1600 et seq. of the Fish and Game Code, with the applicant prior to any direct or indirect impact to a lake or stream bed, bank or channel or associated riparian resources. The Department's issuance of a SAA may be a project that is subject to CEQA. To facilitate our issuance of the Agreement when CEQA applies, the Department as a responsible agency under CEQA may consider the local jurisdiction's (lead agency) document for the project. To minimize additional requirements by the Department under CEQA the document should fully identify the potential impacts to the lake, stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for issuance of the Agreement. Early consultation is recommended, since modification of the proposed project may be required to avoid or reduce impacts to fish and wildlife resources.

Mr. Michael Wagenleitner
September 2, 2004
Page 4

The Department suggests a pre-project or early consultation planning meeting for all projects. To make an appointment, please call Scott Harris, Wildlife Biologist, at (626) 797-3170. Thank you for this opportunity to provide comment.

Sincerely,



Morgan Wehtje
Environmental Scientist IV

Attachments

cc: Mr. Scott Harris
Department of Fish & Game

Mr. Scott Morgan
State Clearinghouse

HCP-Chron
Department of Fish and Game

SPH:sph

ATTACHMENT 1

State of California
THE RESOURCES AGENCY
Department of Fish and Game
May 4, 1984

GUIDELINES FOR ASSESSING THE EFFECTS OF PROPOSED DEVELOPMENTS ON RARE AND ENDANGERED PLANTS AND PLANT COMMUNITIES

The following recommendations are intended to help those who prepare and review environmental documents determine when a botanical survey is needed, who should be considered qualified to conduct such surveys, how field surveys should be conducted and what information should be contained in the survey report.

Botanical surveys that are conducted to determine the environmental effects of a proposed development should be directed to all rare and endangered plants and plant communities. Rare and endangered plants are not necessarily limited to those species which have been "listed" by state and federal agencies but should include any species that, based on all available data, can be shown to be rare and/or endangered under the following definitions.

A species, subspecies or variety of plant is "endangered" when the prospects of its survival and reproduction are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition or disease. A plant is "rare" when, although not presently threatened with extinction, the species, subspecies or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens.

Rare plant communities are those communities that are of highly limited distribution. These communities may or may not contain rare or endangered species. The most current version of the California Natural Diversity Data Base's Outline of Terrestrial Communities in California may be used as a guide to the names of communities.

It is appropriate to conduct a botanical field survey to determine if, or the extent that, rare plants will be affected by a proposed project when:

- a. Based on an initial biological assessment, it appears that the project may damage potential rare plant habitat;
- b. Rare plants have historically been identified on the project site, but adequate information of impact assessment is lacking; or
- c. No initial biological assessment has been conducted and it is unknown whether or not rare plants or their habitat exist on the site.

Botanical consultants should be selected on the basis of possession of the following qualifications (in order of importance):

- a. Experience as a botanical field investigator with experience in field sampling design and field methods;
- b. Taxonomic experience and a knowledge of plant ecology;
- c. Familiarity with the plants of the area, including rare species; and
- d. Familiarity with the appropriate state and federal statutes related to rare plants and plant collecting.

Field surveys should be conducted in a manner that will locate any rare or endangered species that may be present. Specifically, rare or endangered plant surveys should be:

- a. Conducted at the proper time of year when rare or endangered species are both "evident" and identifiable. Field surveys should be scheduled (1) to coincide with known flowering periods, and/or (2) during periods of

phenological development that are necessary to identify the plant species of concern.

- b. Floristic in nature. "Predictive surveys" (which predict the occurrence of rare species based on the occurrence of habitat or other physical features rather than actual field inspection) should be reserved for ecological studies, not for impact assessment. Every species noted in the field should be identified to the extent necessary to determine whether it is rare or endangered.
- c. Conducted in a manner that is consistent with conservation ethics. Collection of rare or suspected rare species (voucher specimens) should be made only when such actions would not jeopardize the continued existence of the population and in accordance with applicable state and federal permit regulations. Voucher specimens should be deposited at recognized public herbaria for future reference. Photography should be used to document plant identification and habitat whenever possible, but especially when the population cannot withstand collection of voucher specimens.
- d. Conducted using systematic field techniques in all habitats of the site to ensure a reasonably thorough coverage of potential impact areas.
- e. Well documented. When a rare or endangered plant (or rare plant community) is located, a California Native Species (or Community) Field Survey Form or equivalent written form should be completed and submitted to the Natural Diversity Data Base.

i. Reports of botanical field surveys should be included in or with environmental assessments, negative declarations, EIR's and EIS's, should contain the following information:

- a. Project description, including a detailed map of the project location and study area.
- b. A written description of biological setting referencing the community nomenclature used and a vegetation map.
- c. Detailed description of survey methodology.
- d. Dates of field surveys.
- e. Results of survey (including detailed maps).
- f. An assessment of potential impacts.
- g. Discussion of the importance of rare plant populations with consideration of nearby populations and total species distribution.
- h. Recommended mitigation measures to reduce or avoid impacts.
- i. List of all species identified.
- j. Copies of all California Native Species Field Survey Forms or Natural Community Field Survey Forms.
- k. Name of field investigator(s).
- l. References cited, persons contacted, herbaria visited, and disposition of voucher specimens.

ATTACHMENT 2

Sensitivity of Top Priority Rare Natural Communities in Southern California*

*Sensitivity rankings are determined by the Department of Fish and Game, California Natural Diversity Data Base and based on either number of known occurrences (locations) and/or amount of habitat remaining (acreage). The three rankings used for these top priority rare natural communities are as follows:

- 1.- Less than 6 known locations and/or on less than 2,000 acres of habitat remaining
- 2.- Occurs in 6-20 known locations and/or 2,000-10,000 acres of habitat remaining
- 3.- Occurs in 21-100 known locations and/or 10,000-50,000 acres of habitat remaining

The number to the right of the decimal point after the ranking refers to the degree of threat posed to that natural community regardless of the ranking. For example:

S1.1 = very threatened
S2.2 = threatened
S3.3 = no current threats known

Sensitivity Rankings (February 1992)

Rank

Community Name

S1.1	Mojave Riparian Forest	Southern Dune Scrub
	Sonoran Cottonwood Willow Riparian	Southern Coastal Bluff Scrub
	Mesquite Bosque	Maritime Succulent Scrub
	Elephant Tree Woodland	Riversidean Alluvial Fan Sage Scrub
	Crucifixion Thorn Woodland	Southern Maritime Chaparral
	Allthorn Woodland	Valley Needlegrass Grassland
	Arizonan Woodland	Great Basin Grassland
	Southern California Walnut Forest	Mojave Desert Grassland
	Mainland Cherry Forest	Pebble Plains
	Southern Bishop Pine Forest	Southern Sedge Bog
	Torrey Pine Forest	Cismontane Alkali Marsh
	Desert Mountain White Fir Forest	

Sensitivity Rankings (Cont.)

Community Name

- S1.2 Southern Foredunes
Mono Pumice Flat
Southern Interior Basalt Fl. Vernal Pool
- S2.1 Venturan Coastal Sage Scrub
Diegan Coastal Sage Scrub
Riversidean Upland Coastal Sage Scrub
Riversidean Desert Sage Scrub
Sagebrush Steppe
Desert Sink Scrub
Mafic Southern Mixed Chaparral
San Diego Mesa Hardpan Vernal P.
San Diego Mesa Claypan Vernal P.
Alkali Meadow
Southern Coastal Salt Marsh
Coastal Brackish Marsh
Transmontane Alkali Marsh
- Coastal and Valley Freshwater Marsh
S. Arroya Willow Riparian Forest
Southern Willow Scrub
Modoc-G. Bas. Cottonwood Willow Rip.
Modoc-Great Basin Riparian Scrub
Mojave Desert Wash Scrub
Engelmann Oak Woodland
Open Engelmann Oak Woodland
Closed Engelmann Oak Woodland
Island Oak Woodland
California Walnut Woodland
Island Ironwood Forest
Island Cherry Forest
S. Interior Cypress Forest
Bigcone Spruce-Canyon Oak Forest
- S2.2 Active Coastal Dunes
Active Desert Dunes
Stab. and Part. Stab. Desert Dunes
Stab. and Part. Stab. Desert Sandfield
Mojave Mixed Steppe
Transmontane Freshwater Marsh
Coulter Pine Forest
S. California Fellfield
White Mountains Fellfield
- S2.3 Bristlecone Pine Forest
Limber Pine Forest



COUNTY OF LOS ANGELES

FIRE DEPARTMENT

1320 NORTH EASTERN AVENUE
LOS ANGELES, CALIFORNIA 90083-3294

(323) 890-4330

P. MICHAEL FREEMAN
FIRE CHIEF
FORESTER & FIRE WARDEN

September 10, 2004

Dr. Michael Wagenleitner
Eastside Union School District
45006 North 30th Street East
Lancaster, CA 93535

Dear Dr. Wagenleitner:

NOTICE OF PREPARATION AND INITIAL STUDY FOR A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE PROPOSED CONSTRUCTION OF THE "COLUMBIA ELEMENTARY SCHOOL" - "LANCASTER" (EIR #2089/2004)

The Notice of Preparation for a Draft Environmental Impact Report for the aforementioned project has been reviewed by the Planning Division, Land Development Unit, and Forestry Division of the County of Los Angeles Fire Department. The following are their comments:

PLANNING DIVISION/FIRE PROTECTION & EMERGENCY MEDICAL SERVICE AVAILABILITY:

The subject development will receive fire protection and paramedic service from the County of Los Angeles Fire Department. Fire Station 117, located at Tierra Bonita Park, is the jurisdictional engine company for this property. It is an assessment engine, i.e. - an engine with some limited paramedic capabilities.

Following are the closest response units, their distance, approximate response time, and staff:

<u>EQUIPMENT</u>	<u>DISTANCE/MILES</u>	<u>TIME/MINUTES</u>	<u>STAFFING</u>
Engine 117	1.1	3.4	4
Engine 135	2.0	5.4	3
Squad 33	4.0	9.5	2
Truck 33	4.0	9.5	4

Fire protection serving the area appears to be adequate for the existing development/land use. However, each additional development creates greater demands on existing resources. Consequently, the impact that this project will have on the adequacy of the Fire Department's level of service is uncertain at this time.

It would be helpful to the Fire Department staff if the environmental document specifies the square footage of proposed new structures.

SERVING THE UNINCORPORATED AREAS OF LOS ANGELES COUNTY AND THE CITIES OF:

AGOURA HILLS	BRADBURY	CUDAHY	HAWTHORNE	LA MIRADA	MALIBU	POMONA	SIGNAL HILL
ARTESIA	CALABASAS	DIAMOND BAR	HIDDEN HILLS	LA PUENTE	MAYWOOD	RANCHO PALOS VERDES	SOUTH EL MONTE
AZUSA	CARSON	DUARTE	HUNTINGTON PARK	LAKEWOOD	NORWALK	ROLLING HILLS	SOUTH GATE
BALDWIN PARK	CERRITOS	EL MONTE	INDUSTRY	LANCASTER	PALMDALE	ROLLING HILLS ESTATES	TEMPLE CITY
BELL	CLAREMONT	GARDENA	INGLEWOOD	LAWDALE	PALOS VERDES ESTATES	ROSEMEAD	WALNUT
BELL GARDENS	COMMERCE	GLEN DORA	IRVINDALE	LOMITA	PARAMOUNT	SAN DIMAS	WEST HOLLYWOOD
BELLFLOWER	COVINA	HAWAIIAN GARDENS	LA CANADA FLINTRIDGE	LYNWOOD	PICO RIVERA	SANTA CLARITA	WESTLAKE VILLAGE
							WHITTIER

LAND DEVELOPMENT UNIT/GENERAL REQUIREMENTS:

The Department may condition future development to provide additional means of access. The development of this project must comply with all applicable code and ordinance requirements for construction, access, water mains, fire flows and hydrants. Specific fire and life safety requirements for the construction phase will be addressed at the building fire plan check. There may be additional fire and life safety requirements during this time.

Every building constructed shall be accessible to Fire Department apparatus by way of access roadways, with an all-weather surface of not less than the prescribed width. The roadway shall be extended to within 150 feet of all portions of the exterior walls when measured by an unobstructed route around the exterior of the building.

Access roads shall be maintained with a minimum of ten (10) feet of brush clearance on each side. Fire access roads shall have an unobstructed vertical clearance clear-to-sky with the exception of protected tree species. Protected tree species overhanging fire access roads shall be maintained to provide a vertical clearance of 13 feet, 6 inches.

When involved with a subdivision in a city contracting fire protection with the County of Los Angeles Fire Department, requirements for access, fire flows and hydrants are addressed during the subdivision tentative map stage. Fire sprinkler systems are required in some residential and most commercial occupancies. For those occupancies not requiring fire sprinkler systems, it is strongly suggested that fire sprinkler systems be installed. This will reduce potential fire and life losses. Systems are now technically and economically feasible for residential use.

INSTITUTIONAL:

The development may require fire flows up to 8,000 gallons per minute at 20 pounds per square inch residual pressure for up to a four-hour duration as outlined in the 2002 County of Los Angeles Fire Code Appendix III-AA. Final fire flows will be based on the size of buildings, their relationship to other structures, property lines, and types of construction used. Fire hydrant spacing shall be based on fire flow requirements as outlined in the 2002 County of Los Angeles Fire Code Appendix III-BB. Additional hydrants will be required if hydrant spacing exceeds specified distances.

1. No portion of lot frontage shall be more than 200 feet via vehicular access from a public fire hydrant.
2. No portion of a building shall exceed 400 feet via vehicular access from a properly spaced public fire hydrant.
3. Additional hydrants will be required if hydrant spacing exceeds specified distances.

Turning radii shall not be less than 32 feet. This measurement shall be determined at the centerline of the road. A Fire Department approved turning area shall be provided for all driveways exceeding 150 feet in length and at the end of all cul-de-sacs. All on-site driveways/roadways shall provide a minimum unobstructed width of 28 feet, clear-to-sky. The on-site driveway is to be within 150 feet of all portions of the exterior walls of the first story of any building. The centerline of the access driveway shall be located parallel to, and within 30 feet of an exterior wall on one side of the proposed structure.

1. Any access way less than 34 feet in width shall be labeled "Fire Lane" on the final recording map, and final building plans.
2. The entrance to the street/driveway and intermittent spacing distances of 150 feet shall be posted with Fire Department approved signs stating "NO PARKING - FIRE LANE" in three-inch high letters. Driveway labeling is necessary to ensure access for Fire Department use.

LIMITED ACCESS DEVICES (GATES, ETC.):

All access devices and gates shall comply with California Code of Regulations, Title 19, Article 3.05 and Article 3.16.

TRAFFIC CALMING MEASURES:

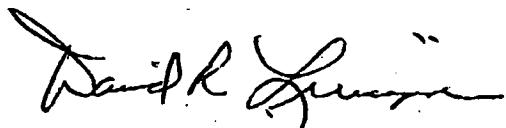
All proposals for traffic calming measures (speed humps/bumps/cushions, traffic circles, roundabouts, etc.) shall be submitted to the Fire Department for review prior to implementation. Should any questions arise regarding design and construction, and/or water and access, please contact Inspector Marvin Dorsey at (323) 890-4243.

FORESTRY DIVISION/OTHER ENVIRONMENTAL CONCERNS:

The statutory responsibilities of the County of Los Angeles Fire Department, Forestry Division include erosion control, watershed management, rare and endangered species, vegetation, fuel modification for Very High Fire Hazard Severity Zones or Fire Zone 4, archeological and cultural resources, and the County Oak Tree Ordinance. Potential impacts in these areas should be addressed in the Draft Environmental Impact Report.

If you have any additional questions, please contact this office at (323) 890-4330.

Very truly yours,



DAVID R. LEININGER, CHIEF, FORESTRY DIVISION
PREVENTION BUREAU

DRL:sc



COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
www.ladpw.org

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

September 14, 2004

IN REPLY PLEASE
REFER TO FILE:

LD-0

Dr. Michael Wagenleitner
Interim Superintendent
Eastside Union School District
45006 North 30th Street East
Lancaster, CA 93535

Dear Dr. Wagenleitner:

**RESPONSE TO A NOTICE OF PREPARATION
OF A DRAFT ENVIRONMENTAL IMPACT REPORT
COLUMBIA ELEMENTARY SCHOOL
CITY OF LANCASTER**

Thank you for the opportunity to provide comments on the Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the Columbia Elementary School. We have reviewed the NOP and offer the following comments for your consideration in preparing the DEIR.

Utilities and Service Systems

Sanitary Sewers

The proposed sewer may outlet into a County maintained sewer facility, which is owned by the City of Lancaster. The final EIR shall include discussions on the collection and disposal of the wastewater that would be generated by this project since the proposed sewer system will be required to be annexed to the Consolidated Sewer Maintenance District. Additionally, this project shall meet the Los Angeles County Sanitation Districts' requirements.

Solid Waste Disposal

The DEIR should identify what types of measures will be implemented to mitigate the cumulative impact of solid waste generation from this and other projects in the surrounding area. Mitigation measures may include, but are not limited to,

Dr. Michael Wagenleitner
September 1, 2004
Page 2

implementation of waste reduction and recycling programs to divert the solid waste and excavated material from the landfills.

Schools are encouraged to take advantage of special County Programs, available through Public Works, by calling (888) CLEAN LA or visiting www.888CleanLA.com.

Additionally, the California Solid Waste Reuse and Recycling Access Act of 1991, as amended, requires each "development project" to provide an adequate storage area for collection and removal of recyclable materials. The DEIR should include/discuss standards to provide adequate recyclable storage areas for collection/storage of recyclable and green waste materials for this project.

Water

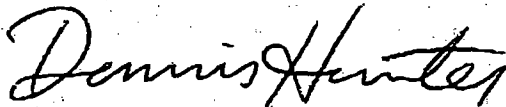
We believe that there is a potentially significant impact with respect to water resources. Waterworks District No. 40 may not have sufficient supplies of water available to serve the proposed tract. Furthermore, the District does not have storage capacity available to provide for domestic and fire protection needs.

The DEIR should include a water availability letter including supporting documents from Waterworks District No. 40 to demonstrate that sufficient water supplies are available.

If you have any questions regarding the above comments, please contact Mr. Juan Sarda at (626) 458-7151.

Very truly yours,

DONALD L. WOLFE
Interim Director of Public Works



DENNIS HUNTER
Assistant Division Engineer
Land Development Division

JMS:jmw

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Alan C. Lloyd, Ph.D.
Agency Secretary
Cal/EPA



Department of Toxic Substances Control

1011 N. Grandview Avenue
Glendale, California 91201



Arnold Schwarzenegger
Governor

February 23, 2005

Mr. Nagalingam Rajakumar
Assistant Superintendent
Eastside Union School District
45006 North 30th Street
Lancaster, California 93535

**APPROVAL OF PRELIMINARY ENDANGERMENT ASSESSMENT, PROPOSED
COLUMBIA ELEMENTARY SCHOOL, AVENUE J-4 AND 27th STREET EAST,
LANCASTER (SITE CODE 304438)**

Dear Mr. Rajakumar:

The Department of Toxic Substances Control (DTSC) reviewed the revised Preliminary Endangerment Assessment (PEA), prepared by Leighton Consulting, Inc., dated and received February 4, 2005, for the subject site. The PEA presents data collected during PEA investigation activities and conclusions based on a PEA risk screening evaluation.

The 12.5-acre site is currently vacant but was used for agriculture from at least 1953 until between 1988 and 1993. Examination of aerial photographs shows the presence of buildings thought to be chicken coops in the southern portion of the property. These structures disappeared by 1993. The northern portion of the property has been used for growing alfalfa.

DTSC has received correspondence, dated February 17, 2005, indicating the Eastside Union School District (EUSD) has complied with all public review and comment requirements set forth in the California Education Code, Section 17213.1(a)(6)(A) for the subject site. According to the notice, EUSD held a public hearing on February 16, 2005 and a public review period ending February 16, 2005, on the PEA for the Site. During the public comment period and hearing, EUSD received no comments regarding the PEA.

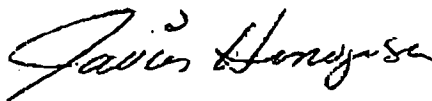
Based on the findings of the PEA investigation, neither an actual or potential release of hazardous materials nor the presence of a naturally occurring hazardous material, which would pose a threat to human health or the environment under unrestricted land use, was indicated at the Site. The PEA concludes that no further investigation of the Site is required. DTSC concurs with the PEA conclusions and hereby approves the PEA.

Mr. Rajakumar
February 23, 2005
Page Two

In accordance with California Education Code, section 17213. , subsection (e), if, at anytime during construction at a school site, a previously unidentified release or threatened release of a hazardous material or the presence of a naturally occurring hazardous material is discovered, the school district shall cease all construction activities at the site, notify and take actions as required by DT: C.

If you have any questions, please contact the Project Manager , Ms. Jennifer Jones, at (818) 551-2973, or me at (818) 551-2821.

Sincerely,



Javier Hinojosa, Chief
Glendale/Sacramento Branch
School Property Evaluation and Cleanup Division

cc: Mr. Joseph L. Montoya, CEG, CHG
Project Manager
Leighton Consulting, Inc.
26074 Avenue Hall, Suite 2
Santa Clarita, California 91355

Appendix B

Traffic Study

COLUMBIA ELEMENTARY SCHOOL
City of Lancaster

— TRAFFIC STUDY —

AUGUST 11, 2004

Prepared for:

HDR

251 S. Lake Avenue, Suite 1000

Pasadena, California 91101

Telephone (626) 584-1742

Fax (626) 584-1750

Prepared by:

Willdan

27042 Towne Centre Drive, Suite 270

Foothill Ranch, California 92610

Telephone (949) 470-8840

Fax (949) 770-9041

August 11, 2004

Ms. Irena Finkelstein
HDR
251 S. Lake Avenue, Suite 1000
Pasadena, CA 91101

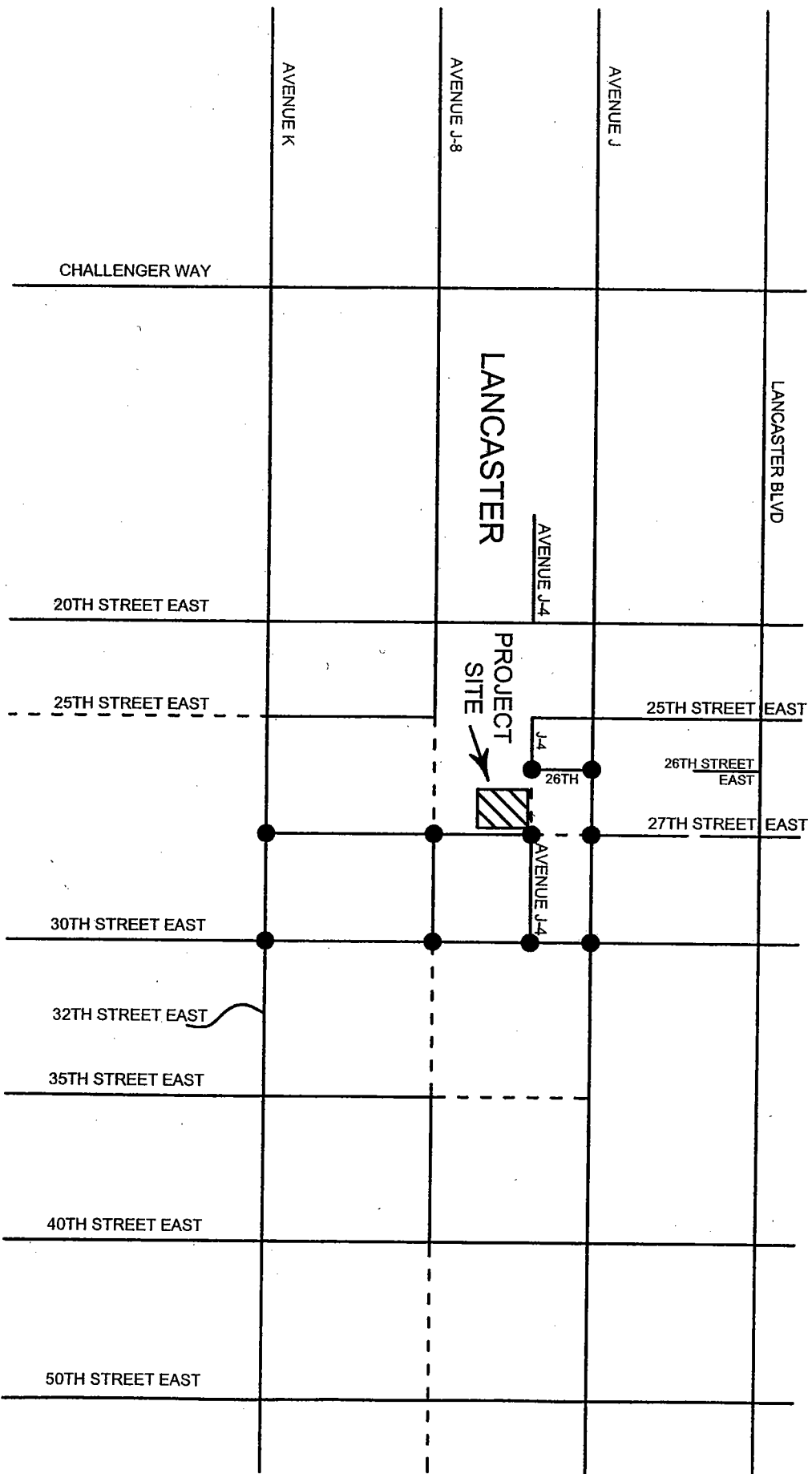
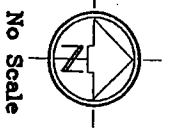
**SUBJECT: COLUMBIA ELEMENTARY SCHOOL - TRAFFIC STUDY
CITY OF LANCASTER**

Dear Ms. Finkelstein:

This study presents a summary of traffic factors related to the proposed *Columbia Elementary School* project to be located on the southwest corner of 27th Street East and Avenue J-4 in the City of Lancaster. The analyses contained in this study are based upon information provided by you, contact with school district representatives and City Staff, field studies conducted by our staff, and standard reference materials.

PROJECT DESCRIPTION

The proposed project consists of developing a parcel of land on the southwest corner of 27th Street East and Avenue J-4 with an elementary school (*Columbia Elementary School*). The proposed project site covers approximately 12 acres and is currently vacant. **Figure 1** illustrates the location of the proposed *Columbia Elementary School* in relationship to the existing surrounding street system. The segment of Avenue J-4 from 27th Street East westerly to 26th Street East, which currently does not exist, is planned to be constructed



LEGEND
● = STUDY INTERSECTIONS

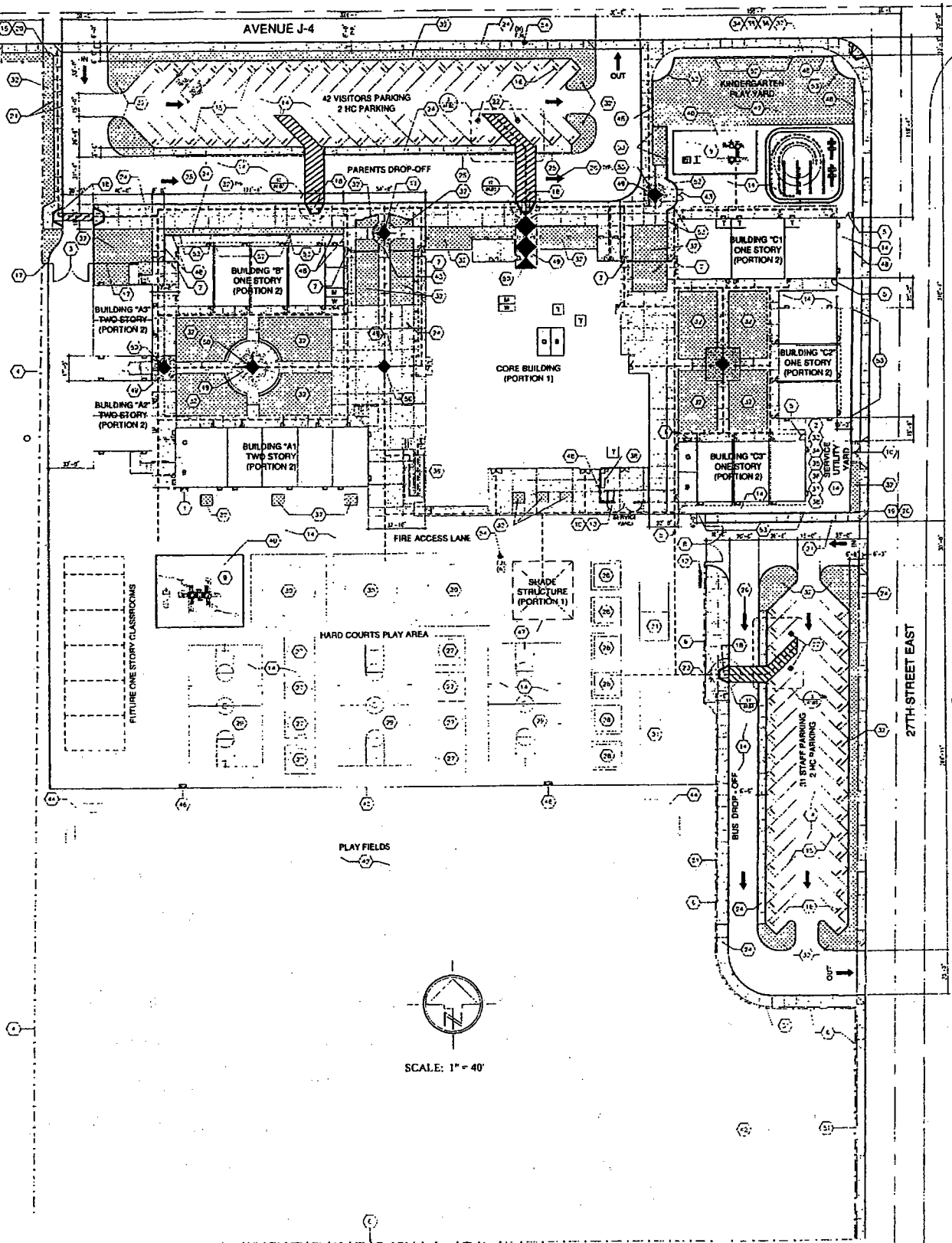
FIGURE 1
Project Location

in conjunction with the proposed project. The site plan for the proposed *Columbia Elementary School* is presented on **Figure 2**.

The site plan on **Figure 2** shows that the school buildings would be located in the northern half of the project site, with the athletic facilities occupying the southern portion of the elementary school site. Access to the elementary school would be provided via driveways on both Avenue J-4 and 27th Street East. Two parking lots are planned for the elementary school; a visitor parking lot is to be located on Avenue J-4, with a staff parking lot located on 27th Street East. As presented on the project site plan (**Figure 2**), a “one-way drive-through” lane would exist adjacent to each parking lot, which would allow ingress and egress to the parking lots and also serve as the drop-off / pick-up areas for students. **Figure 2** also shows that the “one-way drive-through” lane adjacent to the visitor parking lot would operate from west to east; with ingress only via the westerly driveway and egress only from the easterly driveway on Avenue J-4. Similarly, regarding the “one-way drive-through” lane adjacent to the staff parking lot, the one-way operations are shown to be from north to south; with vehicles entering only via the northerly driveway and exiting only from the southerly driveway on 27th Street East. A third driveway would be provided on 27th Street East, north of the ingress only driveway, to be utilized by service vehicles only. It should be noted that the project site plan (**Figure 2**) labels the “one-way drive-through” lane off of 27th Street East as “Bus Drop Off”; however, at this time, no bus service is planned for this proposed elementary school. The need for student busing at this school site may be evaluated in the future. It is anticipated that on rare occasions buses may access the elementary school site (i.e. for field trips or special events).

The proposed elementary school (*Columbia Elementary School*) is planned to enroll approximately 850 students. School operations would follow the traditional school year calendar and a typical school day is planned from approximately 9:00 AM to 3:30 PM (these times can vary by a half-hour either way). This elementary school is planned as a “walk-in” school; and, therefore, busing is not planned to be provided for students attending this school at this time. It is assumed that the elementary school students would

PROPOSED FUTURE DRAINAGE CHANNEL



JOB # 14481

WILLDAN

Traffic Division

FIGURE 2
Project Site Plan

be driven to/from school or would walk to/from school. Approximately 35 staff members are anticipated to work at the proposed *Columbia Elementary School*¹.

EXISTING (YEAR 2004) CONDITIONS

27th Street East is a north-south roadway, which exists in segments from Avenue I to Avenue K in the City of Lancaster. In the study area, 27th Street East provides two lanes of undivided travel from Avenue J-4 to Avenue K and serves a residential area. The segment of 27th Street East, north of Avenue J-4 to Avenue J-2, currently does not exist and there are no plans to construct this segment as a part of the proposed project. North of Avenue J-2, the two undivided lanes of 27th Street East provide access to a church and other residential land uses. The posted speed limit on 27th Street East is 25 miles per hour (MPH).

Avenue J-4 has an east-west alignment and, in the study area, only exists between 25th Street East and 26th Street East and then again between 27th Street East and 30th Street East. Both segments of Avenue J-4 have two undivided travel lanes and serve residential areas. In conjunction with the development of the proposed elementary school, the segment of Avenue J-4 between 26th Street East and 27th Street East (adjacent to the project site) would be constructed.

26th Street East runs in a north-south direction from Avenue J to Avenue J-4 in the vicinity of the proposed project. It serves a residential area with two undivided lanes of travel.

30th Street East generally provides between two and three travel lanes in the study area with a north-south alignment. North of Avenue J-8, 30th Street East is mostly unimproved, adjacent to undeveloped land parcels, and has a posted speed limit of 55 MPH. To the south of Avenue J-8, some residential uses are served by 30th Street East.

¹ Information regarding the proposed *Columbia Elementary School* project in the City of Lancaster was obtained through contact with a representative of the *Eastside Union School District*.

Avenue J is an east-west roadway which runs through the City of Lancaster. Access to the Antelope Valley (S.R. 14) Freeway is provided by Avenue J. In the vicinity of the proposed project, Avenue J provides two undivided lanes of travel. Residential, agricultural uses, and undeveloped land are served by Avenue J in the study area.

Avenue J-8 provides two undivided lanes of east-west travel in the project vicinity. In the study area, it currently only exists between 27th Street East and 30th Street East, serving a residential area.

Avenue K is a roadway with an east-west alignment, which serves the City of Lancaster. Full access to the Antelope Valley (S.R. 14) Freeway is provided via Avenue K. In the project vicinity, Avenue K has three to four lanes of travel divided by a two-way left turn lane. Mostly residential land uses are served by Avenue K in the study area. The posted speed limit on Avenue K varies between 50 and 55 MPH.

Contact was made with the City of Lancaster, Traffic Engineering Department and it was determined that a total of ten intersections in the vicinity of the proposed project should be analyzed as a part of this traffic study. One of the study intersections is signalized, while the remaining nine study intersections are unsignalized. The ten study intersections are listed below and their locations are illustrated on **Figure 1**, presented earlier.

SIGNALIZED INTERSECTION	UNSIGNALIZED INTERSECTIONS
30 th Street East / Avenue K	27 th Street East / Avenue J (Two-Way STOP controlled for 27 th Street East approaches only)
	27 th Street East / Avenue J-4 * (Uncontrolled intersection; currently, only northbound right turn and westbound left turn movements)
	27 th Street East / Avenue J-8 (T-intersection; Two-Way STOP controlled for 27 th Street East approaches only)
	27 th Street East / Avenue K (T-intersection; Two-Way STOP controlled for 27 th Street East approach only)
	26 th Street East / Avenue J (T-intersection; Two-Way STOP controlled for 26 th Street East approach only)
	26 th Street East / Avenue J-4 * (Uncontrolled intersection; currently, only southbound right turn and eastbound left turn movements)
	30 th Street East / Avenue J (All-Way STOP controlled)
	30 th Street East / Avenue J-4 (T-intersection; Two-Way STOP controlled for Avenue J-4 approach only)
	30 th Street East / Avenue J-8 (T-intersection; Two-Way STOP controlled for Avenue J-8 approach only)
<p>* These study intersections currently have only two legs with non-conflicting movements. Due to these factors (and also very low traffic volumes), these study intersections are not analyzed under "Existing" or "Opening Day Without Project" conditions. With the development of the proposed elementary school project, the segment of Avenue J-4 between 26th Street East and 27th Street East would be constructed, adding a third leg to these study intersections.</p>	

Existing AM and PM peak hour traffic counts were conducted at the study intersections by *Traffic Data Services, Inc.*, a traffic counting firm. Counts were conducted in January and May of 2004 and existing field data were also collected for use in the overall analyses. (Three of the 30th Street study intersections were previously counted in January 2004 for another project in the study area, while the remaining study locations were counted in May 2004.) In order to account for elementary school traffic on the roadways, the study intersections were counted from 7:00 to 9:30 AM and from 3:00 to 6:00 PM, which is a slight extension of the typical AM and PM count periods (7:00 - 9:00 AM and 4:00 - 6:00

PM). **Appendix A** contains all of the count data for the study intersections. **Figure 3** presents the Existing (Year 2004) geometrics and controls at the ten study intersections, along with the existing configuration of the surrounding roadways. The Existing (Year 2004) AM and PM peak hour volumes at the study intersections are illustrated on **Figure 4**. **Figure 5** shows the existing average daily traffic (ADT) volumes for roadway segments in the study area. These ADT volumes were estimated based upon the peak two-way volumes from the Existing (Year 2004) intersection count data (presented in **Appendix A**), which were then multiplied by a factor of ten (10).

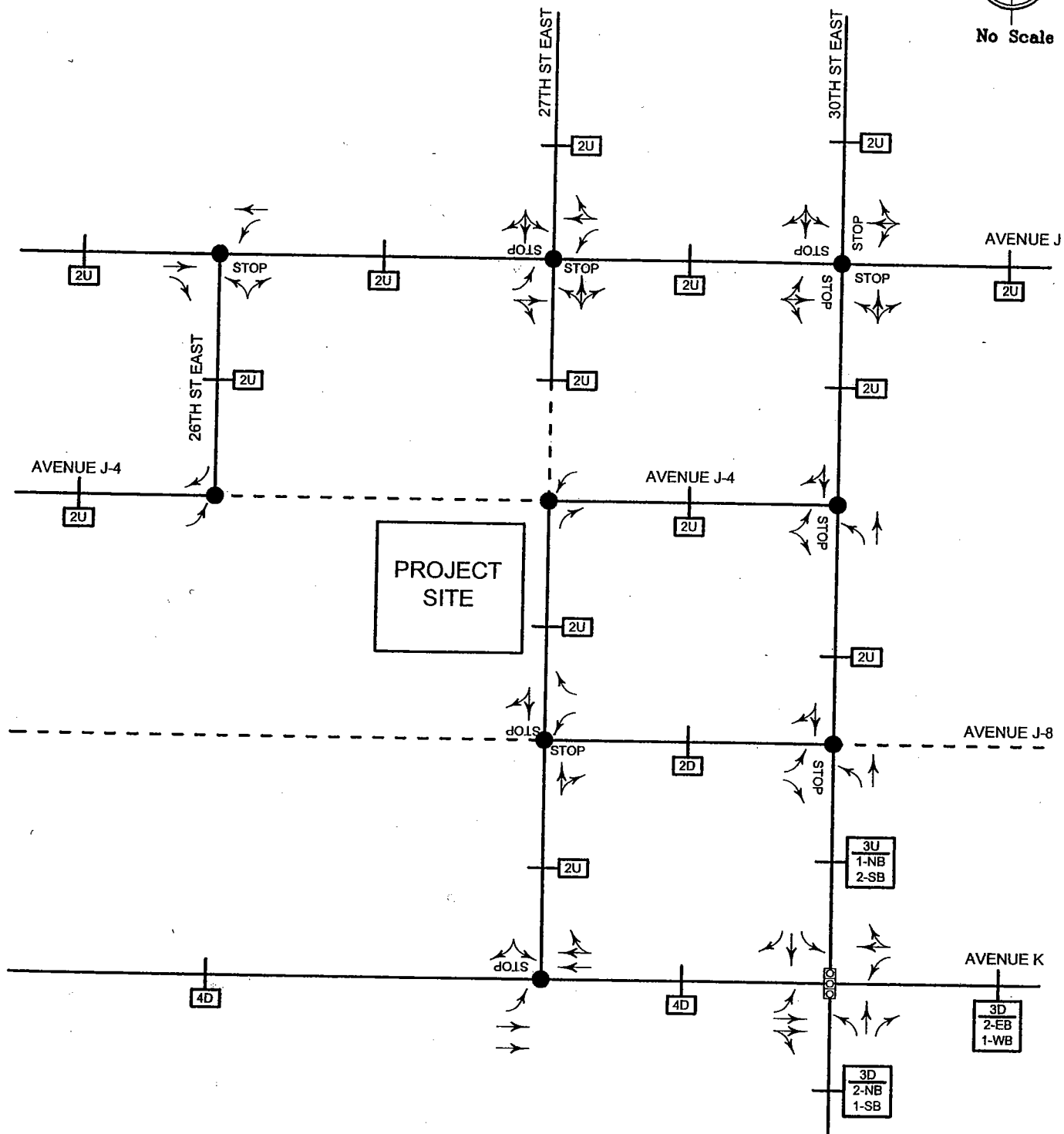
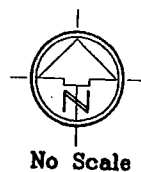
Intersection Analyses - Existing (Year 2004) Conditions

The 2000 Highway Capacity Manual software (HCS 2000) was utilized for analyzing both the signalized and unsignalized study intersections in these traffic analyses. In these intersection analyses procedures, the operating conditions are defined in terms of Levels of Service (LOS). The Levels of Service are described as letter “grades”, which are associated with vehicle delay times, where “A” is considered the best and “F” is over capacity. It is generally recognized that LOS A through D represent acceptable intersection operations, while LOS E and F indicate an over capacity (unacceptable) situation. An explanation of Level of Service as it relates to vehicle delay is provided in **Appendix B**.

Table 1 summarizes the results of the intersection analyses under the Existing (Year 2004) conditions. As shown in **Table 1**, all of the study intersections currently operate at acceptable Levels of Service (LOS A and B) during both the AM and PM peak hours. (It should be stated again that the 27th Street East / Avenue J-4 and 26th Street East / Avenue J-4 intersections are not being analyzed under “Existing” or “Opening Day Without Project” conditions.) The supporting HCS intersection analyses worksheets can be referenced in **Appendix C**.

Traffic Signal Warrant Analyses - Existing (Year 2004) Conditions

Nine of the ten intersections examined in this traffic study are currently unsignalized. Seven of these unsignalized study intersections were analyzed to determine whether a traffic signal is warranted at any of these locations under the Existing (Year 2004)



LEGEND

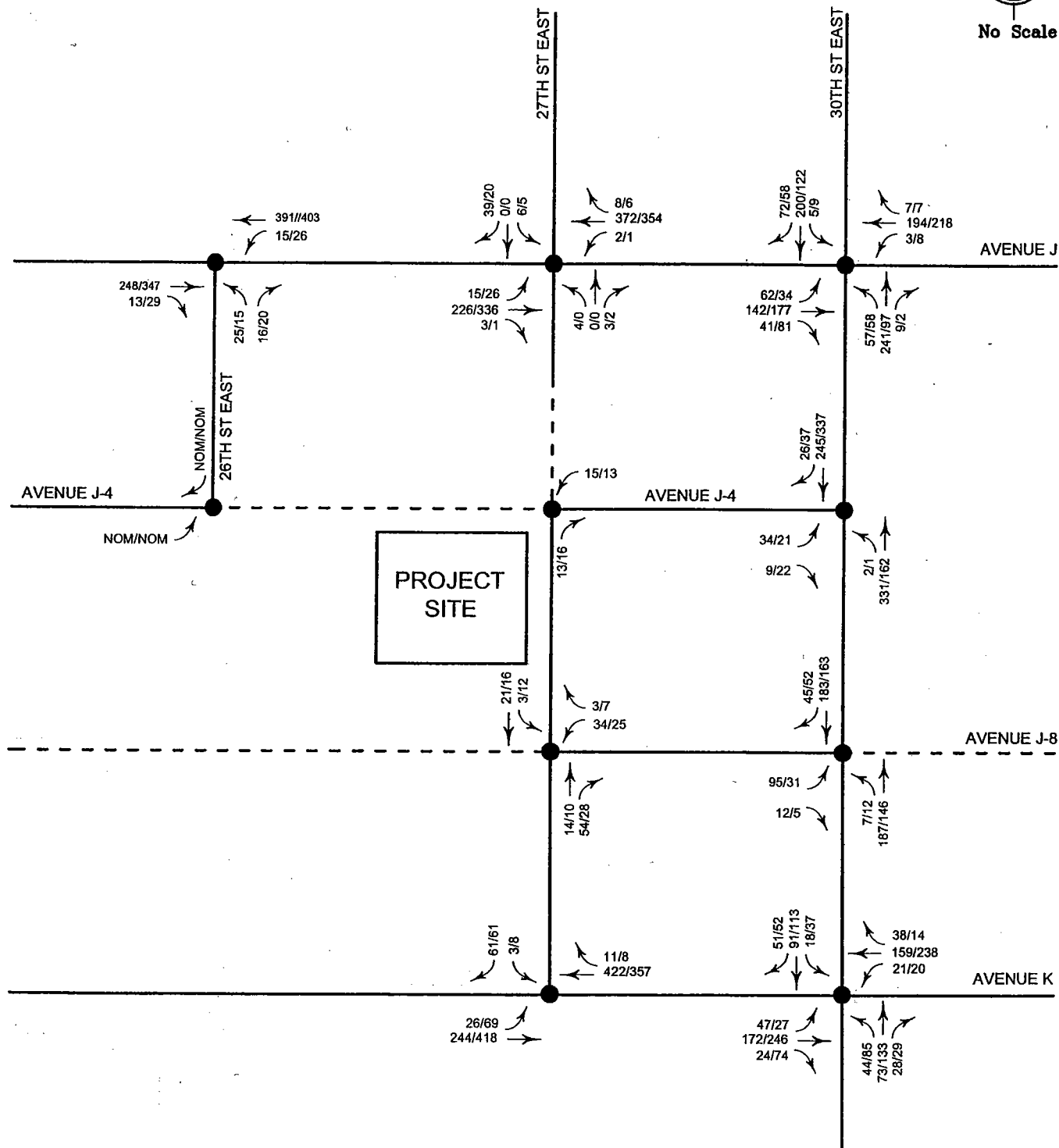
- = STUDY INTERSECTIONS
- STOP = STOP SIGN
- ⊙ = SIGNALIZED
- - - = STREET DOES NOT CURRENTLY EXIST
- 2 = NUMBER OF LANES
- U = UNDIVIDED
- D = DIVIDED BY TWO-WAY LEFT TURN LANE

City of Lancaster

JOB# 14481

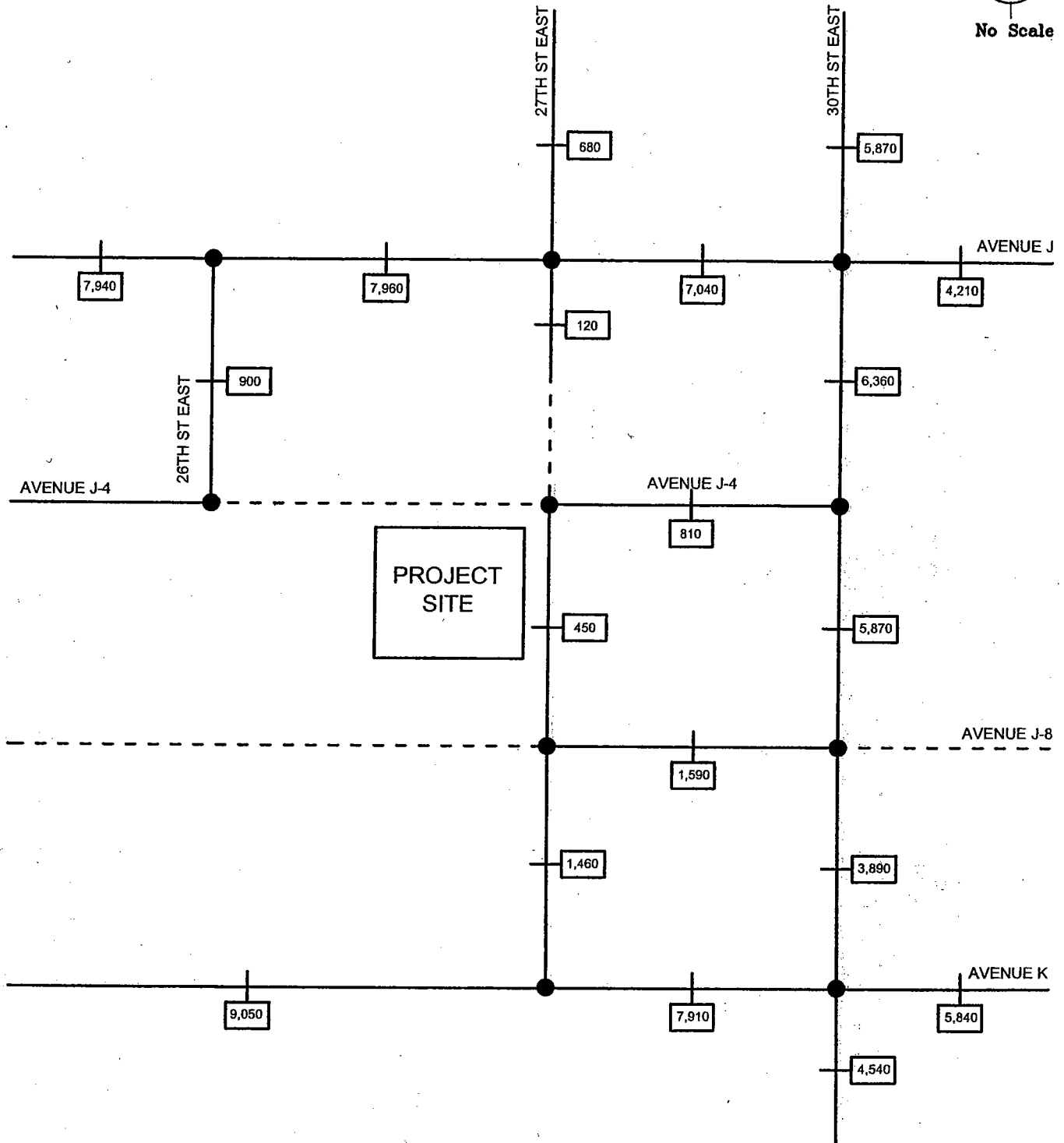
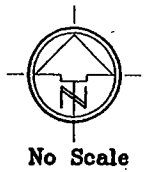
WILLDAN

FIGURE 3
Existing (Year 2004)
Geometrics & Controls



LEGEND

- = STUDY INTERSECTIONS
- 13/29 = AM/PM PEAK HOUR VOLUMES
- NOM = NOMINAL



LEGEND

- = STUDY INTERSECTIONS
- 7,940 = ESTIMATED TWO-WAY DAILY VOLUMES
(BASED UPON PEAK TWO-WAY VOLUMES FROM EXISTING
INTERSECTION COUNT DATA MULTIPLIED BY 10.)

TABLE 1
INTERSECTION ANALYSES SUMMARY
Columbia Elementary School - City of Lancaster

INTERSECTIONS	DELAY (in sec) / LEVEL OF SERVICE (LOS) ⁽¹⁾					
	EXISTING (YEAR 2004) CONDITIONS		YEAR 2006 OPENING DAY WITHOUT PROJECT CONDITIONS		YEAR 2006 OPENING DAY WITH PROJECT CONDITIONS	
	AM/PEAK HOUR	PM/PEAK HOUR	AM/PEAK HOUR	PM/PEAK HOUR	AM/PEAK HOUR	PM/PEAK HOUR
SIGNALIZED INTERSECTION:						
30 th Street East / Avenue K	9.4 / A	9.8 / A	10.8 / B	20.3 / C	11.1 / B	22.1 / C
UNSIGNALIZED INTERSECTIONS:						
27 th Street East / Avenue J ⁽³⁾ - With Improvements ⁽⁶⁾	13.1 / B	11.9 / B	36.3 / E 23.6 / C ⁽⁶⁾	24.6 / C 22.3 / C ⁽⁶⁾	— 23.6 / C	— 22.3 / C
27 th Street East / Avenue J-4 ⁽⁴⁾	(4)	(4)	(4)	(4)	7.12 / A	7.10 / A
27 th Street East / Avenue J-8 ⁽³⁾	9.6 / A	9.4 / A	9.7 / A	9.4 / A	11.6 / B	11.3 / B
27 th Street East / Avenue K ⁽³⁾	10.3 / B	10.7 / B	13.4 / B	16.5 / C	16.3 / C	21.7 / C
26 th Street East / Avenue J ⁽³⁾ - With Improvements ⁽⁶⁾ - With Signalization ⁽¹⁰⁾	13.0 / B	13.3 / B	34.1 / D 23.7 / C ⁽⁶⁾	39.7 / E 28.8 / D ⁽⁶⁾	— 98.3 / F 6.8 / A ⁽¹⁰⁾	— 294.4 / F 7.8 / A ⁽¹⁰⁾
26 th Street East / Avenue J-4 ⁽⁴⁾	(4)	(4)	(4)	(4)	7.79 / A	7.79 / A
30 th Street East / Avenue J ⁽⁵⁾ - With Signal & Improvements ⁽⁷⁾	14.57 / B	11.63 / B	293.85 / F 15.9 / B ⁽⁷⁾	310.96 / F 26.6 / C ⁽⁷⁾	— 16.9 / B	— 31.0 / C
30 th Street East / Avenue J-4 ⁽³⁾ - With Improvements ⁽⁶⁾ - With Signalization ⁽¹⁰⁾	13.0 / B	11.7 / B	47.6 / E 31.2 / D ⁽⁶⁾	34.5 / D 24.8 / C ⁽⁶⁾	— 44.9 / E 7.9 / A ⁽¹⁰⁾	— 34.9 / D 7.8 / A ⁽¹⁰⁾
30 th Street East / Avenue J-8 ⁽³⁾ - With Signal & Improvements ⁽⁹⁾	12.1 / B	10.8 / B	1194 / F 25.8 / C ⁽⁹⁾	442.8 / F 24.9 / C ⁽⁹⁾	— 25.3 / C	— 24.5 / C

(1) The study intersections were analyzed utilizing the 2000 Highway Capacity Manual software (HCS 2000) for signalized and unsignalized intersections.
 (2) The "Opening Day" conditions include Existing (Year 2004) volumes, general area traffic growth volumes up to the proposed elementary school project's opening day (Year 2006), and volumes related to other area projects in the study area.

(3) These unsignalized study intersections are Two-Way STOP controlled.
 (4) These study intersections currently have only two legs with non-conflicting traffic movements and no traffic controls. These locations are not analyzed under "Existing" or "Opening Day Without Project" conditions, since they are uncontrolled and the traffic movements do not conflict (and also due to very low traffic volumes).
 (5) This unsignalized study intersection is All-Way STOP Controlled.
 (6) Under the "Opening Day Without Project" conditions, improvements are needed to achieve acceptable intersection operations. With an added westbound through lane, acceptable operations would result.
 (7) Under the "Opening Day Without Project" conditions, improvements are needed to achieve acceptable intersection operations. With signalization (warranted under "Existing" conditions) and the improvements which were identified as necessary at this location in a previously completed traffic study ("Eastside High School, City of Lancaster, Traffic Study"; Willdan; July 9, 2004), acceptable operations would result.
 (8) Under the "Opening Day Without Project" conditions, improvements are needed to achieve acceptable intersection operations. With an added northbound through lane, acceptable operations would result.
 (9) Under the "Opening Day Without Project" conditions, improvements are needed to achieve acceptable intersection operations. With signalization (warranted under "Opening Day Without Project" conditions) and the improvements which were identified as necessary at this location in a previously completed traffic study ("Eastside High School, City of Lancaster, Traffic Study"; Willdan; July 9, 2004), acceptable operations would result.
 (10) Signals are warranted at the two study intersections of 26th Street East / Avenue J and 30th Street East / Avenue J-4 with the addition of the proposed Columbia Elementary School project to the "Opening Day" conditions. (See Table 2). With signalization, the intersection operations at these two locations are improved to acceptable Levels of Service.

conditions. (As previously noted, the 27th Street East and 26th Street East intersections with Avenue J-4 are not being analyzed under “Existing” or “Opening Day Without Project” conditions.) Warrants for the installation of traffic signals have been developed by the *Federal Highway Administration* and *Caltrans*². There are 11 individual *Caltrans* warrants and the satisfaction of any of these warrants indicates that signalization should be considered. Since peak hour traffic counts were conducted at the study intersections, **Warrant 11 - Peak Hour Volume** of the *Caltrans* publication is the most applicable warrant to be used in analyzing these intersections. **Warrant 11** is based upon the peak (highest) one hour of traffic.

The *Caltrans* Traffic Signal Warrant worksheets for **Warrant 11** (including *Figure 9-9* of the *Caltrans Traffic Manual*³ for Rural Areas) were completed for the unsignalized study intersections and these worksheets are contained in **Appendix D. Table 2** summarizes the results of the traffic signal warrant analyses under the Existing (Year 2004) conditions. Review of the worksheets and **Table 2** indicates that a signal is currently only warranted at the 30th Street East / Avenue J intersection. The remaining study intersections do not satisfy the *Caltrans* Traffic Signal Warrant (**Warrant 11**) under the Existing (Year 2004) conditions.

Although signalization is currently warranted at the study intersection of 30th Street East / Avenue J, this intersection is shown (in **Table 1**, previously presented) to have acceptable (Level of Service B) operations during both peak hours under the Existing (Year 2004) conditions. Since the 30th Street East / Avenue J intersection is currently operating acceptably as an unsignalized intersection, the installation of a traffic signal is not recommended under the Existing (Year 2004) conditions.

² **Traffic Manual**; Chapter 9, “Traffic Signals and Lighting”; California Department of Transportation (*Caltrans*); July 1996.

³ **Traffic Manual**; Chapter 9, “Traffic Signals and Lighting”; op.cit.

TABLE 2

SIGNAL WARRANT ANALYSES SUMMARY

Columbia Elementary School - City of Lancaster

INTERSECTIONS	SIGNAL WARRANT SATISFIED (YES or NO) (1)		
	EXISTING (YEAR 2004) CONDITIONS	YEAR 2006 OPENING DAY (2) WITHOUT PROJECT CONDITIONS	YEAR 2006 OPENING DAY (2) WITH PROJECT CONDITIONS
27 th Street East / Avenue J	NO	NO	NO
27 th Street East / Avenue J-4 (3)	(3)	(3)	NO
27 th Street East / Avenue J-8	NO	NO	NO
27 th Street East / Avenue K	NO	YES	—
26 th Street East / Avenue J	NO	NO	YES
26 th Street East / Avenue J-4 (3)	(3)	(3)	NO
30 th Street East / Avenue J	YES	—	—
30 th Street East / Avenue J-4	NO	NO	YES
30 th Street East / Avenue J-8	NO	YES	—

(1) Since peak hour traffic counts were conducted at the study intersections, *Warrant 11 - Peak Hour Volume* of the Caltrans *Traffic Manual* publication was determined to be the most applicable warrant and was utilized to determine the need for signalization at the study locations. *Warrant 11* is based upon the peak (highest) one hour of traffic.

(2) The "Opening Day" conditions include Existing (Year 2004) volumes, general area traffic growth volumes up to the proposed elementary school project's opening day (Year 2006), and volumes related to other area projects in the study area.

(3) Due to very low traffic volumes and the non-conflicting movements at these study intersections during these analyses conditions, the need for signalization was not analyzed.

OPENING DAY (YEAR 2006) WITHOUT PROJECT CONDITIONS

It was determined through contact with the City of Lancaster, Traffic Engineering Department that these traffic analyses for the proposed *Columbia Elementary School* project should include evaluation of the study intersections under Opening Day conditions (for the proposed elementary school), both without and with the proposed project. The Opening Day Without Project conditions reflect Existing (Year 2004) traffic volumes, plus ambient growth in the study area (up to the proposed elementary school's Opening Day), plus other area projects traffic volumes.

Ambient Growth

The proposed *Columbia Elementary School* project is anticipated to be fully built and occupied with the maximum attendance of 850 students in August 2006 (approximately 2.5 years)⁴. The Existing (Year 2004) peak hour volumes at the study intersections were then projected to the future Year 2006. A growth rate of two percent per year was utilized in these analyses based upon discussions with City of Lancaster Staff. Future, pre-project traffic volumes are calculated by applying the growth factor (two percent per year) to the existing peak hour traffic count volumes, utilizing the equation $(1 + i)^n$; where "i" is the growth factor and "n" is the number of years of growth. These future volumes (existing plus growth; before the proposed project is added) account for any general area traffic growth and also include the impacts of any other area projects which are not specifically identified in this traffic study.

Other Area Projects

The City of Lancaster, Planning Department was contacted to determine if there were any "other area" projects in the immediate vicinity of the proposed *Columbia Elementary School* project which should be included in these traffic analyses. Review of the other area project information received from City Staff⁵, along with examination of the City of Lancaster's

⁴ Per contact with an *Eastside Union School District* representative.

⁵ "*Development Summary Report*"; City of Lancaster, Department of Community Development; Report of January 2003 - April 2004.

website⁶, identified a total of 28 other area projects (within an approximate two mile radius of the proposed elementary school site) for inclusion in these analyses. Most of the other area projects in the study area are single family residential developments, along with some shopping center land use, a church expansion, and a high school. The other area projects considered in this traffic study are listed in **Table 3** and their locations in relationship to the proposed elementary school project and the surrounding street system are illustrated on **Figure 6**. The potential traffic impacts of these specific other area projects are examined in these traffic evaluations.

Trip Generation and Assignment - Other Area Projects

Trip generation rates and equations determined to be applicable to the other area projects were referenced from the *Institute of Transportation Engineers (ITE)* publication, **Trip Generation**⁷, and are listed in **Table 3**, previously presented. These trip generation rates / equations were then applied to the other area projects and the resulting trip ends generated by each project are also presented in **Table 3**. As shown in **Table 3**, the other area projects are estimated to generate a total of 25,890 daily trip ends, of which 2,930 (1,265 In, 1,665 Out) trip ends would occur during the AM peak hour and 3,840 (2,120 In, 1,720 Out) trip ends would occur during the PM peak hour.

Distribution percentages were developed for the other area projects based upon a review of regional land uses, the types of land uses proposed, the surrounding street system, and the proximity of freeway access. The estimated other area project trip ends, identified in **Table 3**, were then assigned to the ten study intersections based upon these assumed distribution percentages. The total resulting AM and PM peak hour trip ends related to the other area projects are illustrated on **Figure 7**.

⁶ The City of Lancaster's website was also examined to obtain data regarding the most recent "other area" projects being considered by City Staff.

⁷ **Trip Generation**, 7th Edition; Institute of Transportation Engineers (ITE); 2003.

TABLE 3

TRIP GENERATION - OTHER AREA PROJECTS

Columbia Elementary School - City of Lancaster

LAND USE / PROJECT	DESCRIPTOR / SIZE	TRIP ENDS				
		DAILY	AM PEAK HOUR		PM PEAK HOUR	
			IN	OUT	IN	OUT
TRIP RATES ⁽¹⁾ :						
Single Family Residential (ITE Land Use 210)	Per Dwelling Unit (DU)	9.57	0.19	0.56	0.64	0.37
Mobile Home Park (ITE Land Use 240)	Per Occupied Dwelling Unit (DU)	4.99	0.09	0.35	0.37	0.22
Church (ITE Land Use 560)	Per 1,000 Square Feet (SF)	9.11	0.39	0.33	0.34	0.32
TRIP EQUATIONS ⁽¹⁾ :						
Shopping Center (ITE Land Use 820)	Per 1,000 Square Feet (SF)	<u>Daily:</u> $\ln(T) = 0.65 \ln(X) + 5.83$ <u>AM Peak Hour:</u> $\ln(T) = 0.60 \ln(X) + 2.29$ (61% In, 39% Out) <u>PM Peak Hour:</u> $\ln(T) = 0.66 \ln(X) + 3.40$ (48% In, 52% Out) Daily & PM Passby Reduction = 34% ⁽²⁾				
TRIP ENDS:						
1) Retail Pads - CUP No. 99-10 (Northwest Corner of 20 th St. East / Avenue J) ⁽³⁾						
- Shopping Center	100,000 SF (approx.) ⁽⁴⁾	6,790	95	60	300	325
2) Mobile Home Park Expansion - SPR No. 03-02 (West Side of 30 th St. East ; South of Avenue I) ⁽³⁾						
- Mobile Homes	33 DU	170	5	10	10	10
3) Residential Tract Completion - TTM No. 31588 (Southeast Corner of 25 th St. East / Lancaster Blvd.) ⁽³⁾						
- Single Family Homes	35 DU	340	5	20	20	15
4) Residential Tract - TTM No. 31613 (West of 25 th St. East ; South of Lancaster Blvd.) ⁽³⁾						
- Single Family Homes	45 DU	430	10	25	30	15
5) Residential Tract Completion - TTM No. 45050 (Northeast Corner of 20 th St. East / Avenue K) ⁽³⁾						
- Single Family Homes	8 DU	80	NOM	5	5	5
6) Residential Tract Completion - TTM No. 46557 (Southwest Corner of 20 th St. East / Lancaster Blvd.) ⁽³⁾						
- Single Family Homes	13 DU	120	5	5	10	5
7) Residential Tract - TTM No. 53297 (Southwest Corner of 20 th St. East / Avenue K) ⁽³⁾						
- Single Family Homes	191 DU	1,830	35	105	120	70
8) Residential Tract Completion - TTM No. 47895 (Northwest Corner of Challenger Way / Avenue K-12) ⁽³⁾						
- Single Family Homes	16 DU	150	NOM	10	10	5

- (1) Trip generation rates and equations were referenced from *Trip Generation, 7th Edition*; Institute of Transportation Engineers (ITE); 2003.
 (2) Passby reduction percentage was referenced from *Trip Generation Handbook*; Institute of Transportation Engineers (ITE); March 2001.
 (3) Information regarding other area projects was obtained from a report provided by the City of Lancaster. ("Development Summary Report", City of Lancaster, Department of Community Development; Report of January 2003 - April 2004.)
 (4) Estimated based upon several entries in the City's "Development Summary Report" (Report of January 2003 - April 2004) and also a field review performed for the study area in April 2004.

TABLE 3 (Cont.)

TRIP GENERATION - OTHER AREA PROJECTS

Columbia Elementary School - City of Lancaster

PROJECT	SIZE	TRIP ENDS				
		DAILY	AM PEAK HOUR		PM PEAK HOUR	
			IN	OUT	IN	OUT
TRIP ENDS (Cont.):						
9) Residential Tract Completion - TTM No. 48534 (Northeast Corner of 35 th St. East / Avenue I) ⁽³⁾						
- Single Family Homes	347 DU	3,320	65	195	220	130
10) Residential Tract Completion - TTM No. 49864-05 (Southeast Corner of 30 th St. East / Avenue K) ⁽³⁾						
- Single Family Homes	5 DU	50	NOM	5	5	NOM
11) Residential Tract Completion - TTM No. 49864-06 (Southwest Corner of 32 nd Street East / Avenue K) ⁽³⁾						
- Single Family Homes	16 DU	150	NOM	10	10	5
12) Residential Tract - TTM No. 54025 (Southeast Corner of 20 th St. East / Lancaster Blvd.) ⁽³⁾						
- Single Family Homes	98 DU	940	20	55	65	35
13) Residential Tract - TTM No. 54315 (Southwest Corner of 30 th St. East / Newgrove St.) ⁽³⁾						
- Single Family Homes	19 DU	180	5	10	15	5
14) Residential Tract - TTM No. 54365 (Southeast Corner of 30 th St. East / Avenue K) ⁽³⁾						
- Single Family Homes	44 DU	420	10	25	30	15
15) Residential Tract - TTM No. 54366 (East of Challenger Way ; North Side of Avenue K-8) ⁽³⁾						
- Single Family Homes	28 DU	270	5	15	20	10
16) Residential Tract - TTM No. 54368 (Southeast Corner of Carol Dr. / Avenue K-4) ⁽³⁾						
- Single Family Homes	20 DU	190	5	10	15	5
17) Residential Tract - TTM No. 060044 (Southwest Corner of 20 th St. East / Avenue I) ⁽³⁾						
- Single Family Homes	109 DU	1,040	20	60	70	40
18) Residential Tract - TTM No. 54274 (Northeast Corner of 20 th St. East / Kettering St.) ⁽³⁾						
- Single Family Homes	80 DU	770	15	45	50	30
19) Residential Tract - TTM No. 54439 (Southeast Corner of 25 th St. East / Avenue J-8) ⁽³⁾						
- Single Family Homes	34 DU	330	5	20	20	15
20) Residential Tract - TTM No. 060133 (Southwest Corner of 30 th St. East / Avenue J) ⁽³⁾						
- Single Family Homes	125 DU	1,200	25	70	80	45

(3) Information regarding other area projects was obtained from a report provided by the City of Lancaster. ("Development Summary Report", City of Lancaster, Department of Community Development; Report of January 2003 - April 2004.)

TABLE 3 (Cont.)

TRIP GENERATION - OTHER AREA PROJECTS

Columbia Elementary School - City of Lancaster

PROJECT	SIZE	TRIP ENDS					
		DAILY	AM PEAK HOUR		PM PEAK HOUR		
			IN	OUT	IN	OUT	
TRIP ENDS (Cont.) :							
21) Residential Tract - TTM No. 060147 (Northwest Corner of 25th St. East / Avenue J) ⁽³⁾							
- Single Family Homes	122 DU	1,170	20	70	80	45	
22) Residential Tract - TPM No. 060409 (Northeast Corner of Challenger Way / Avenue J-7) ⁽³⁾							
- Single Family Homes	4 DU	40	NOM	5	5	NOM	
23) Residential Tract - TTM No. 060780 (Southeast Corner of 25 th Street East / Avenue K) ⁽³⁾							
- Single Family Homes	41 DU	390	5	25	25	15	
24) Church Expansion - CUP No. 03-10 (Northeast Corner of Challenger Way / Avenue I) ⁽³⁾							
- Church	29,331 SF	270	10	10	10	10	
25) Residential Tract - TTM No. 060512 (Southwest Corner of 17 th Street East / Avenue J) ⁽⁵⁾							
- Single Family Homes	83 DU	790	15	45	55	30	
26) Residential Tract - TTM No. 060154 (Southeast Corner of 30 th Street East / Avenue J) ⁽⁵⁾							
- Single Family Homes	139 DU	1,330	25	80	90	50	
27) Residential Tract - TTM No. 061079 (Southwest Corner of Carpenter Drive / Avenue K-6) ⁽⁵⁾							
- Single Family Homes	10 DU	100	NOM	5	5	5	
28) Eastside High School (Southwest Corner of 35 th St. East / Avenue J-8) ⁽⁶⁾							
- High School	3,500 Students	3,030	860	665	745	780	
TOTAL TRIP ENDS		25,890	1,265	1,665	2,120	1,720	

(3) Information regarding other area projects was obtained from a report provided by the City of Lancaster. ("Development Summary Report", City of Lancaster, Department of Community Development; Report of January 2003 - April 2004.)

(5) The City of Lancaster's website was examined (Planning Commission Meeting Minutes) and it was determined that these more recent projects (located within the vicinity of the proposed elementary school project) should be included in the list of other area projects being analyzed in this traffic study. These other area projects are not included within the City's latest update of the "Development Summary Report" (Report of January 2003 - April 2004).

(6) Trip generation data for Eastside High School was obtained from a recently completed traffic study for this project. ("Eastside High School, City of Lancaster, Traffic Study", Willdan; July 9, 2004.)

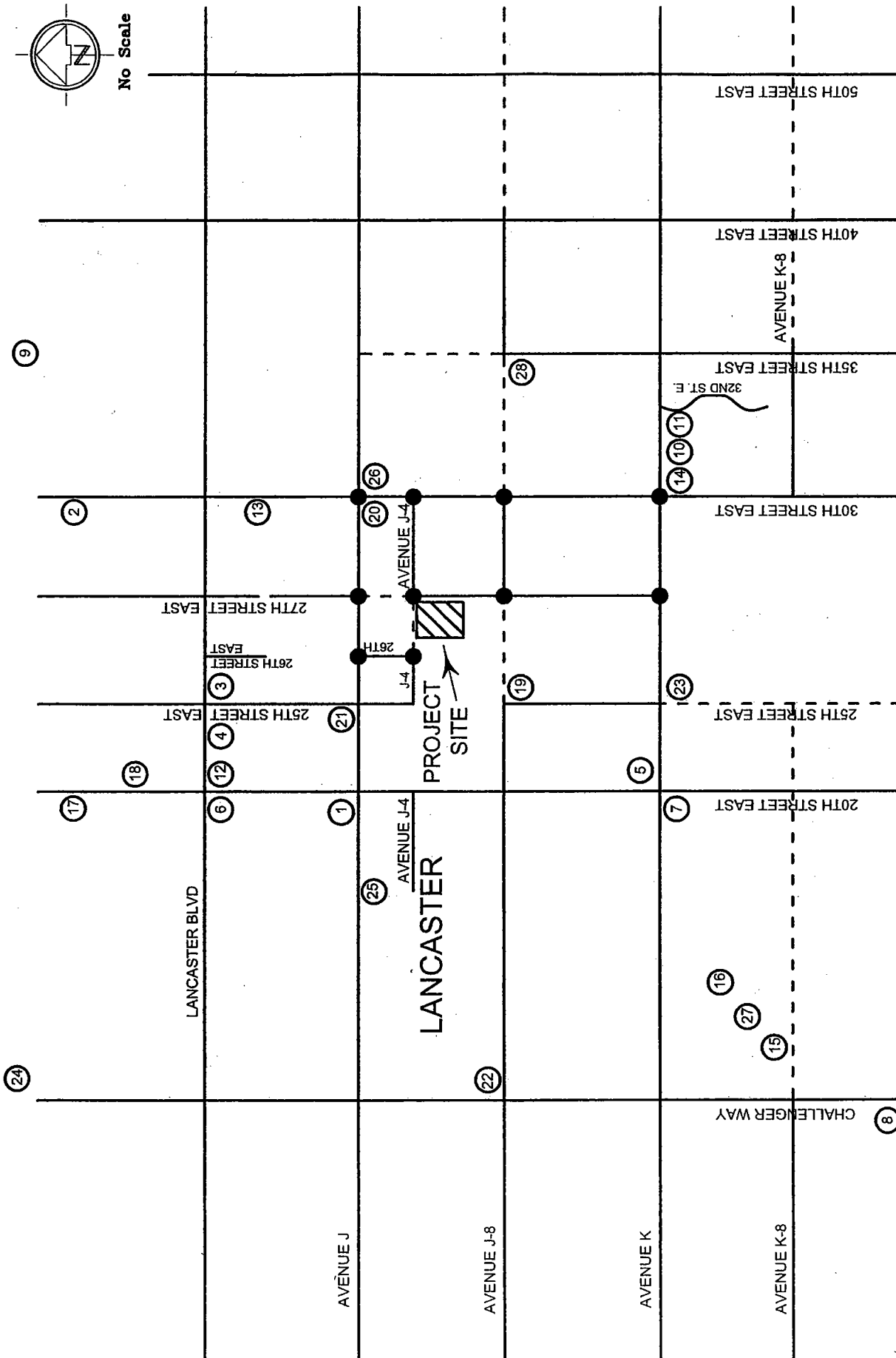
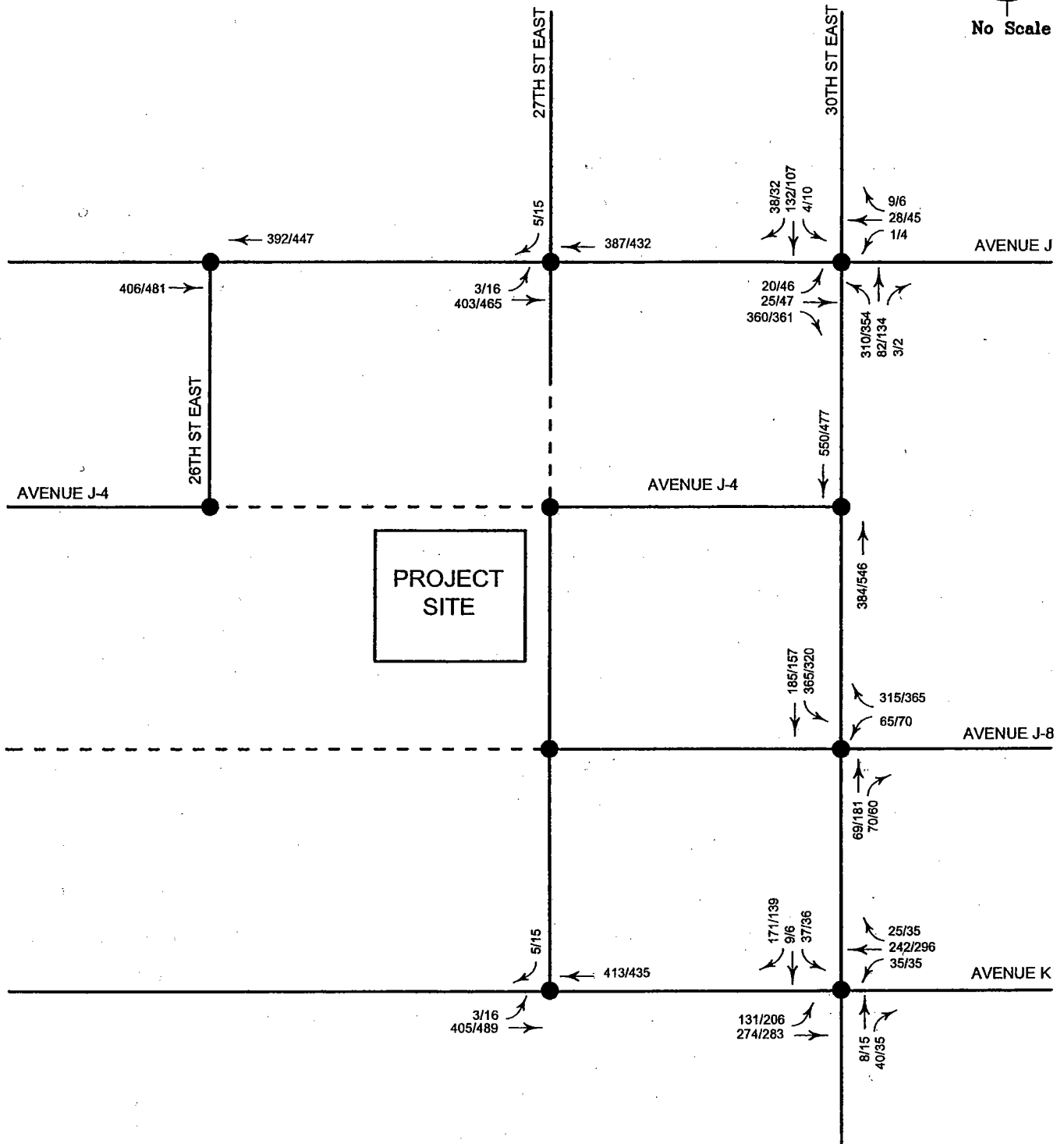
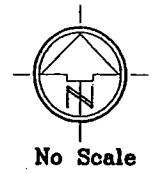


FIGURE 6
Other Area Projects Locations

LEGEND
 ● = STUDY INTERSECTIONS
 ① = OTHER AREA PROJECT LOCATION
 (CORRESPOND TO PROJECT NUMBERS ON TABLE 3)



LEGEND

- = STUDY INTERSECTIONS
- 406/481 = AM/PM PEAK HOUR VOLUMES

City of Lancaster

JOB# 14481

WILLDAN

FIGURE 7
Other Area Projects Only
Peak Hour Volumes

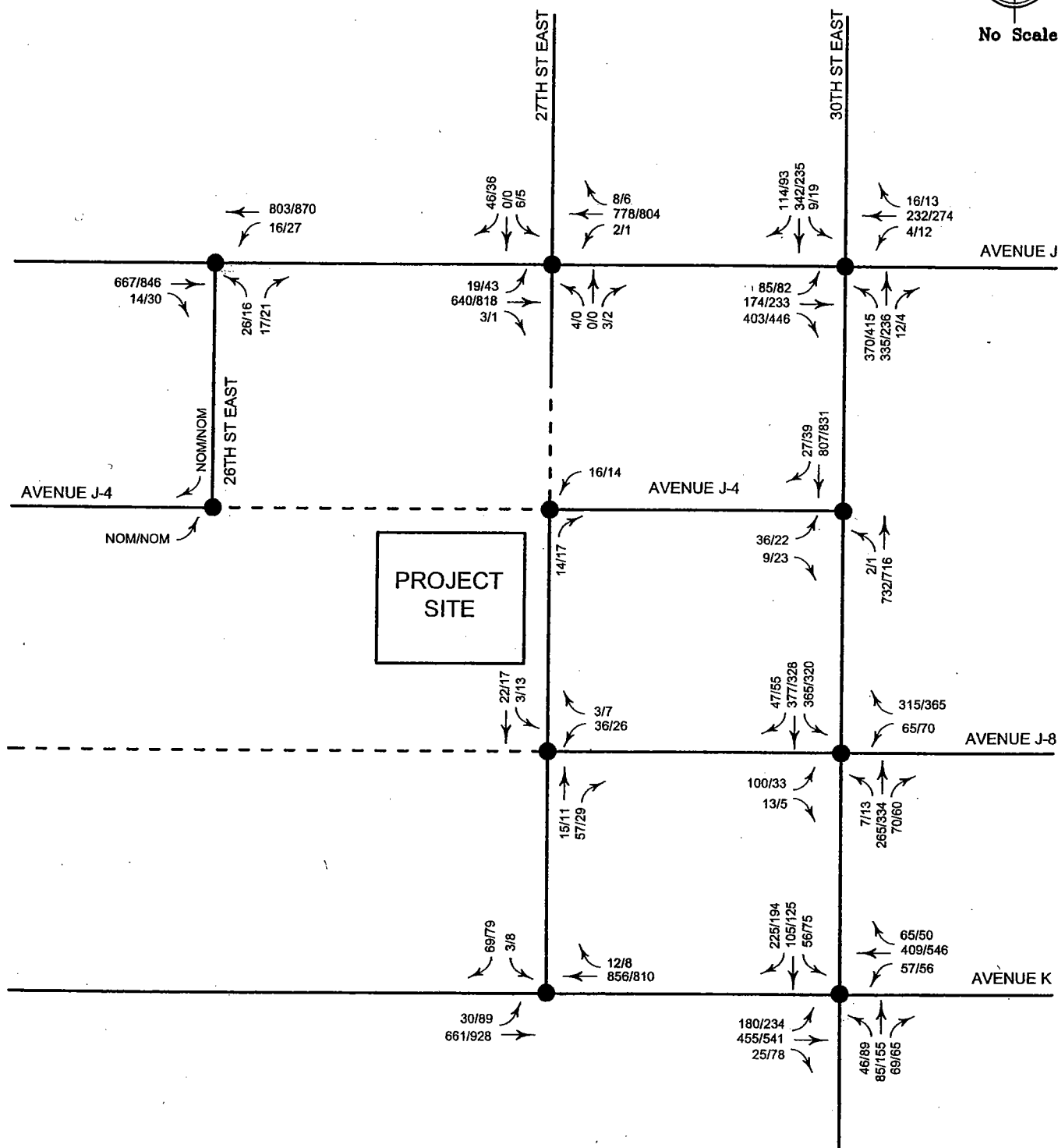
Intersection Analyses - Opening Day (Year 2006) Without Project Conditions

The other area project traffic volumes (as shown on **Figure 7**) were added to the Existing (Year 2004) plus ambient growth traffic volumes at the ten study intersections, so the intersection analyses could be recalculated for the Opening Day (Year 2006) Without Project conditions. **Figure 8** illustrates the resulting Opening Day (Year 2006) Without Project (existing plus growth plus other) AM and PM peak hour volumes at the ten study intersections, which were utilized in these analyses. The Opening Day (Year 2006) Without Project daily (ADT) volumes on the surrounding roadways are presented on **Figure 9**.

The Opening Day (Year 2006) Without Project peak hour volumes (as presented on **Figure 8**) were then utilized in the HCS intersection analyses in order to evaluate the operations at the study intersections prior to the addition of the proposed elementary school project. As shown in **Table 1** (provided earlier in this study), under the Opening Day (Year 2006) Without Project conditions, three of the study intersections would continue to operate acceptably (at Levels of Service A through C) during both the AM and PM peak hours, while five of the study intersections would have unacceptable LOS E or F operations during one or both peak hours. (As previously noted, the two study intersections of 27th Street East / Avenue J-4 and 26th Street East / Avenue J-4 are not being analyzed under the "Existing" or "Opening Day Without Project" conditions.) The five study intersections which would operate unacceptably under the Opening Day (Year 2006) Without Project conditions are 27th Street East / Avenue J (LOS E - AM), 26th Street East / Avenue J (LOS E - PM), 30th Street East / Avenue J (LOS F - AM and PM), 30th Street East / Avenue J-4 (LOS E - AM), and 30th Street East / Avenue J-8 (LOS F - AM and PM). The supporting HCS intersection analyses worksheets can be found in **Appendix C**.

Traffic Signal Warrant Analyses - Opening Day (Year 2006) Without Project Conditions

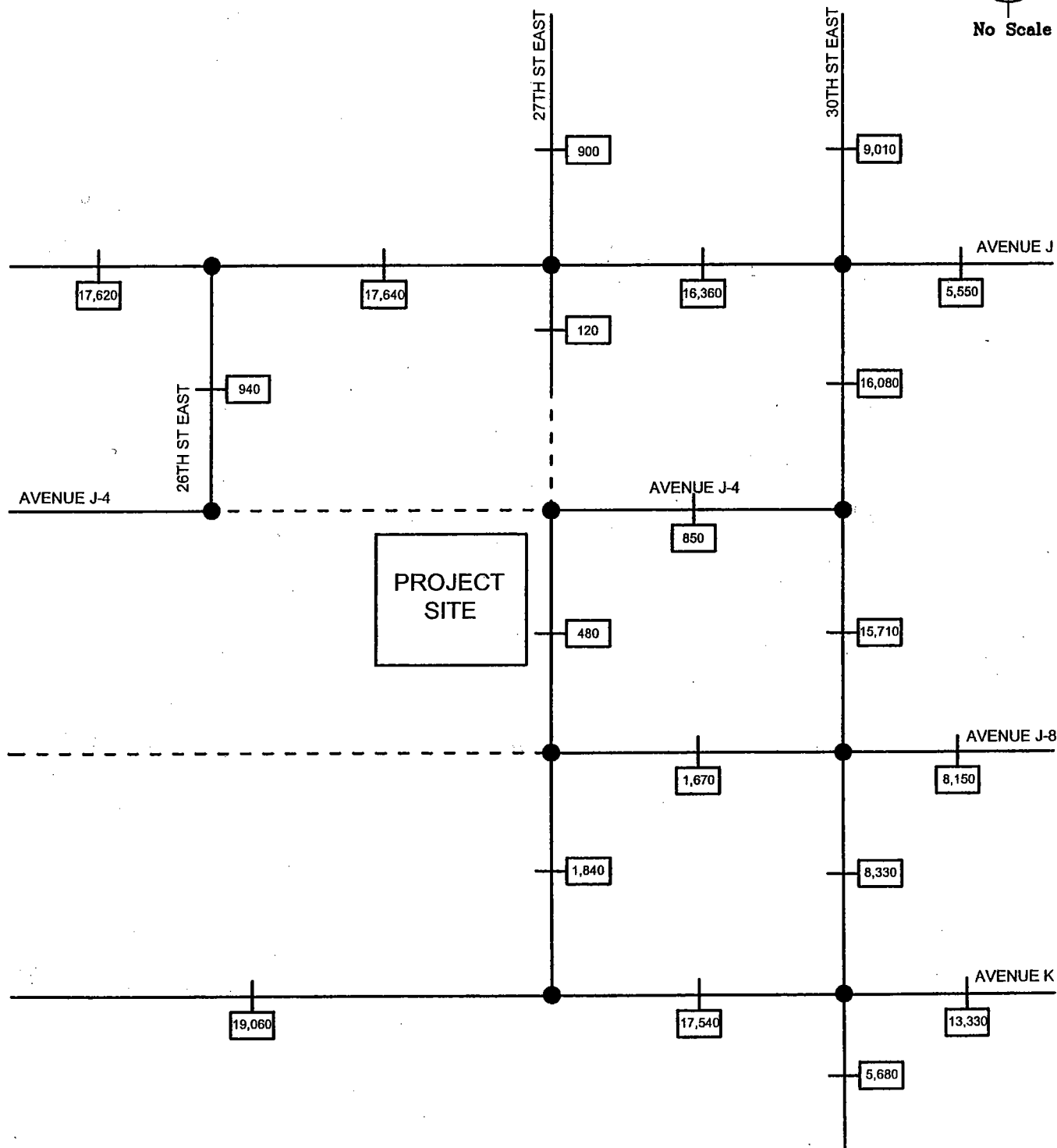
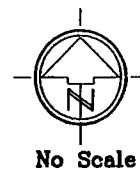
The unsignalized study intersections were again analyzed to determine whether signalization would be warranted at these locations under the Opening Day (Year 2006) Without Project (existing plus growth plus other) conditions. **Table 2** (previously provided



LEGEND

- = STUDY INTERSECTIONS
- 14/30 = AM/PM PEAK HOUR VOLUMES

FIGURE 8
Opening Day (Year 2006) Without Project
(Existing + Growth + Other)
Peak Hour Volumes



LEGEND

- = STUDY INTERSECTIONS
- 17,620 = ESTIMATED TWO-WAY DAILY VOLUMES
(BASED UPON PEAK TWO-WAY VOLUMES
MULTIPLIED BY 10.)

FIGURE 9
 Opening Day (Year 2006) Without Project
 (Existing + Growth + Other)
 Daily (ADT) Volumes

in this study) summarizes the results of the traffic signal warrant analyses, while **Appendix D** contains the supporting *Caltrans* Traffic Signal Warrant worksheets. It is noted that the intersection of 30th Street East / Avenue J was previously shown to satisfy the signal warrant under the Existing (Year 2004) conditions. As shown in **Table 2**, the two study intersections of 27th Street East / Avenue K and 30th Street East / Avenue J-8 would warrant signalization under the Opening Day (Year 2006) Without Project conditions. The remaining unsignalized study intersections would not satisfy the warrant for signalization under the Opening Day (Year 2006) Without Project conditions. (As mentioned earlier in this traffic study, the 27th Street East and 26th Street East intersections with Avenue J-4 are not being analyzed under the “Existing” or “Opening Day Without Project” conditions.)

As previously presented in **Table 1**, the study intersection of 27th Street East / Avenue K would have acceptable (Levels of Service B and C) operations during both peak hours under the Opening Day (Year 2006) Without Project conditions. Even though signalization is shown to be warranted at this location under the Opening Day (Year 2006) Without Project conditions, since this intersection operates acceptably as an unsignalized intersection, the installation of a traffic signal would not be recommended under the Opening Day (Year 2006) Without Project conditions.

Improvements - Opening Day (Year 2006) Without Project Conditions

Under the Opening Day (Year 2006) Without Project conditions, five of the study intersections (27th Street East / Avenue J, 26th Street East / Avenue J, 30th Street East / Avenue J, 30th Street East / Avenue J-4, and 30th Street East / Avenue J-8) would have unacceptable Levels of Service E or F operations during one or both peak hours, as previously shown in **Table 1**. Therefore, improvements are necessary at these locations in order to achieve acceptable intersection operations.

As identified in **Table 2**, provided earlier in this study, signal warrants have been satisfied at two of the study intersections (30th Street East / Avenue J - under “Existing” conditions and 30th Street East / Avenue J-8 - under “Opening Day Without Project” conditions), which are shown to operate unacceptably (LOS F) under the Opening Day (Year 2006) Without

Project conditions. With the implementation of the warranted signalization at the study intersections of 30th Street East / Avenue J and 30th Street East / Avenue J-8, along with other improvements which were identified as necessary at these locations in a previously completed traffic study⁸, it can be seen (in **Table 1**) that the intersection operations at these two study intersections would be improved to acceptable Levels of Service B and C during both peak hours under the Opening Day (Year 2006) Without Project conditions. [At 30th Street East / Avenue J, the improvements include a separate northbound left turn lane and a separate eastbound right turn lane being added to the intersection, along with signalization. At 30th Street East / Avenue J-8, in addition to signalization, the westbound approach to the intersection is added (consisting of one left turn lane and one through / right combination lane) and restriping would provide one left turn lane and one through / right combination lane on the remaining intersection legs.] The supporting HCS intersection analyses worksheets are provided in **Appendix C**.

Under the Opening Day (Year 2006) Without Project conditions, improvements are also shown to be necessary at the unsignalized study intersections of 27th Street East / Avenue J and 26th Street East / Avenue J in order to achieve acceptable intersection operations. It has been determined (and can be seen in **Table 1**) that with the addition of a westbound through lane (for a total of two) at both the 27th Street East / Avenue J and 26th Street East / Avenue J intersections, the unacceptable LOS E operations during the Opening Day (Year 2006) Without Project conditions would be improved to acceptable Levels of Service (LOS C and D) at both locations. **Appendix C** can be reviewed for the supporting HCS intersection analyses worksheets.

Review of **Table 1** indicates that the study intersection of 30th Street East / Avenue J-4 would also have unacceptable LOS E operations during the AM peak hour under the Opening Day (Year 2006) Without Project conditions. The addition of an added northbound through lane (for a total of two) to 30th Street East / Avenue J-4 would improve the intersection operations under the Opening Day (Year 2006) Without Project conditions

⁸

"Eastside High School, City of Lancaster, Traffic Study"; Willdan; July 9, 2004.

from LOS E to an acceptable LOS D during the AM peak hour (as identified in **Table 1**). The supporting HCS intersection analyses worksheets are available in **Appendix C**.

It is noted that the improvements (including signalization) that are shown to be necessary in order to achieve acceptable intersection operations under the Opening Day (Year 2006) Without Project conditions are assumed to be in place for the remaining intersection analyses conditions ("Opening Day With Project") in this traffic study.

PROJECT CONDITIONS

Trip Generation - Proposed Project

In order to analyze the potential traffic impacts of the proposed *Columbia Elementary School* project, it is necessary to estimate the trip generation of this proposed project. Trip generation rates are generally referenced from the *Institute of Transportation Engineers (ITE)* publication, **Trip Generation**⁹. The standard trip generation rates for an Elementary School land use found in the *ITE* publication are usually applied to schools which are located in urban areas, where the majority of the students would walk to school. Since the proposed elementary school is located in a relatively rural area and only a small percentage of the students are assumed to walk to school (about 25 percent)¹⁰, it was, therefore, determined that the *ITE* Elementary School trip generation rates would not be applicable to the proposed *Columbia Elementary School* project.

Information needed in order to determine the trip generation for the proposed *Columbia Elementary School* project was then obtained through contact with a representative of the *Eastside Union School District* in the City of Lancaster. The information collected included a description of the proposed elementary school (the number of students to be enrolled, the availability of busing, etc.); the estimated percentages of students assumed to walk to school, to be bused, or to be driven by parents; and the number of faculty / staff

⁹ **Trip Generation, 7th Edition; op.cit.**

¹⁰ Information regarding the proposed *Columbia Elementary School* project in the City of Lancaster was obtained through contact with an *Eastside Union School District* representative.

members anticipated to work at the proposed elementary school site. These data are summarized in **Table 4**; along with assumptions utilized in these trip generation analyses which are based upon traffic engineering judgement; and also the directional distribution percentages for an Elementary School land use referenced from the *ITE* publication¹¹. The method used to calculate the daily trip generation for the proposed *Columbia Elementary School* project is also shown in **Table 4**.

Table 5 lists the trip ends projected to be generated by the parent-driven vehicles and the staff vehicles of the proposed elementary school project. (As noted in the previously presented **Table 4** and as mentioned earlier in this study, bus service will not be made available to students at this time.) As shown in **Table 5**, the proposed *Columbia Elementary School* project (850 students maximum) is estimated to generate a total of 1,350 daily trip ends, with 675 (340 In, 335 Out) trip ends occurring during the AM peak hour and 675 (335 In, 340 Out) trip ends occurring during the PM peak hour.

It is possible that the PM peak of the proposed *Columbia Elementary School* project may fall within the "street" peak hour, which occurs between the hours of 4:00 PM and 6:00 PM. In order to provide a "worst case" analysis, all of the vehicle traffic associated with the proposed elementary school was assumed to peak during the PM "street" peak hour. Another assumption in these trip generation analyses is that all of the parent-driven vehicles are assumed to enter and exit the proposed project site during each of the AM and PM peak periods, since they are dropping-off students (AM peak hour) or picking-up students (PM peak hour). These assumptions are reflected in the trip generation analyses for the proposed project, presented in **Table 5**.

Trip Distribution and Assignment - Proposed Project

Distribution percentages were developed for the proposed *Columbia Elementary School* project based upon a review of regional land use, the type of land use proposed, and the proposed surrounding street system. In conjunction with the *Columbia Elementary School*

¹¹ *Trip Generation, 7th Edition; op.cit.*

TABLE 4

INFORMATION TO DETERMINE TRIP GENERATION - PROPOSED PROJECT

Columbia Elementary School - City of Lancaster

ELEMENTARY SCHOOL - 850 STUDENTS		
25% Students Walk ⁽¹⁾	75% Students Dropped-Off (Parents) ⁽¹⁾⁽²⁾	0% Students Bused ⁽¹⁾
210 Students Walk	640 Students Dropped-Off	0 Students Bused
PARENT VEHICLES:		
✦ For vehicles driven by parents, the typical vehicle occupancy is assumed to be 2 students per car.		
✦ Assume 4 trips per day per parent-driven car.		
STAFF VEHICLES:		
✦ 35 staff members are estimated ⁽¹⁾ .		
✦ For vehicles driven by staff members, the vehicle occupancy is assumed to be 1 person per car.		
✦ Assume 2 trips per day per staff member vehicle.		
DAILY TRIP GENERATION CALCULATION:		
✦ Parents: 640 Students ÷ 2 (Vehicle Occupancy) = 320 Vehicles X 4 trips = 1,280 trips		
✦ Staff: 35 Staff Members ÷ 1 (Vehicle Occupancy) = 35 Vehicles X 2 trips = 70 trips		
✦ TOTAL DAILY TRIPS ESTIMATED = 1,350 TRIPS		
PEAK HOUR - DIRECTIONAL DISTRIBUTION USED FOR HIGH SCHOOL:		
ITE Directional Distribution for an Elementary School (Land Use 520) ⁽³⁾	AM Peak Hour In: 55% Out: 45%	PM Peak Hour In: 45% Out: 55%

- (1) Information obtained through conversations with a representative for the *Eastside Union School District*.
 (2) This estimate is conservative, since some of these students may ride bicycles.
 (3) Information referenced from *Trip Generation, 7th Edition; Institute of Transportation Engineers (ITE); 2003*.

TABLE 5

TRIP GENERATION - PROPOSED PROJECT

Columbia Elementary School - City of Lancaster

LAND USE	VEHICLE SIZE	TRIP ENDS				
		DAILY	AM PEAK HOUR		PM PEAK HOUR ⁽¹⁾	
			IN	OUT	IN	OUT
ELEMENTARY SCHOOL - 850 STUDENTS						
Parents	320 Vehicles	1,280	320 ⁽²⁾	320 ⁽²⁾	320 ⁽²⁾	320 ⁽²⁾
Staff	35 Vehicles	70	20	15	15	20
Buses ⁽³⁾	0 Buses	—	—	—	—	—
TOTAL		1,350	340	335	335	340

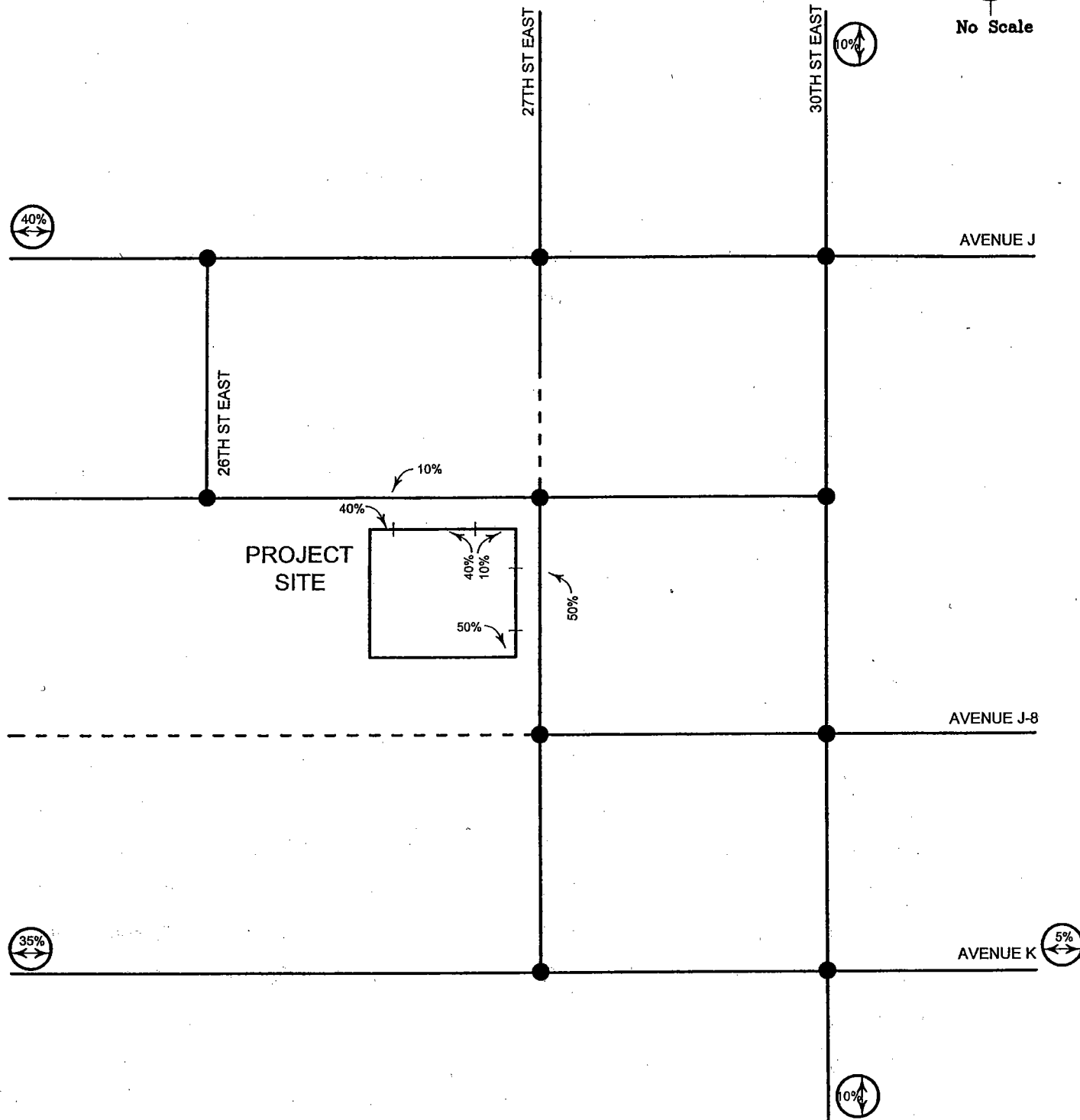
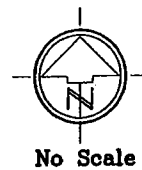
- (1) The Elementary School PM peak would not fall within the "street" peak hour (which occurs between 4:00 PM to 6:00 PM). In order to provide a "worst case" scenario, all of the vehicle traffic associated with *Columbia Elementary School* was assumed to peak during the PM "street" peak hour.
- (2) All of the parent vehicles are assumed to enter and exit the Elementary School during each peak period, since they are dropping-off students (AM peak hour) or picking-up students (PM peak hour).
- (3) No busing is anticipated for this school at this time.

project development, the segment of Avenue J-4 from 27th Street East westerly to 26th Street East is planned to be constructed. The construction of this segment of Avenue J-4 would add additional legs to two study intersections (27th Street East / Avenue J-4 — the west leg; and 26th Street East / Avenue J-4 — the east leg.) This segment of Avenue J-4, along with the additional intersection legs, are assumed to be a part of the street system in the determination of the distribution percentages for the proposed elementary school project. The general distribution pattern developed for the proposed *Columbia Elementary School* project is illustrated on **Figure 10**.

The proposed project generated trip ends (identified in **Table 5**) were then assigned to the proposed street system based upon the distribution percentages on **Figure 10** and also the project access points shown on the site plan for the proposed elementary school (**Figure 2**, presented earlier in this study). **Figure 11** presents the resulting project only AM and PM peak hour trip assignment volumes at the ten study intersections. The project only daily (ADT) volumes on the surrounding roadways are illustrated on **Figure 12**.

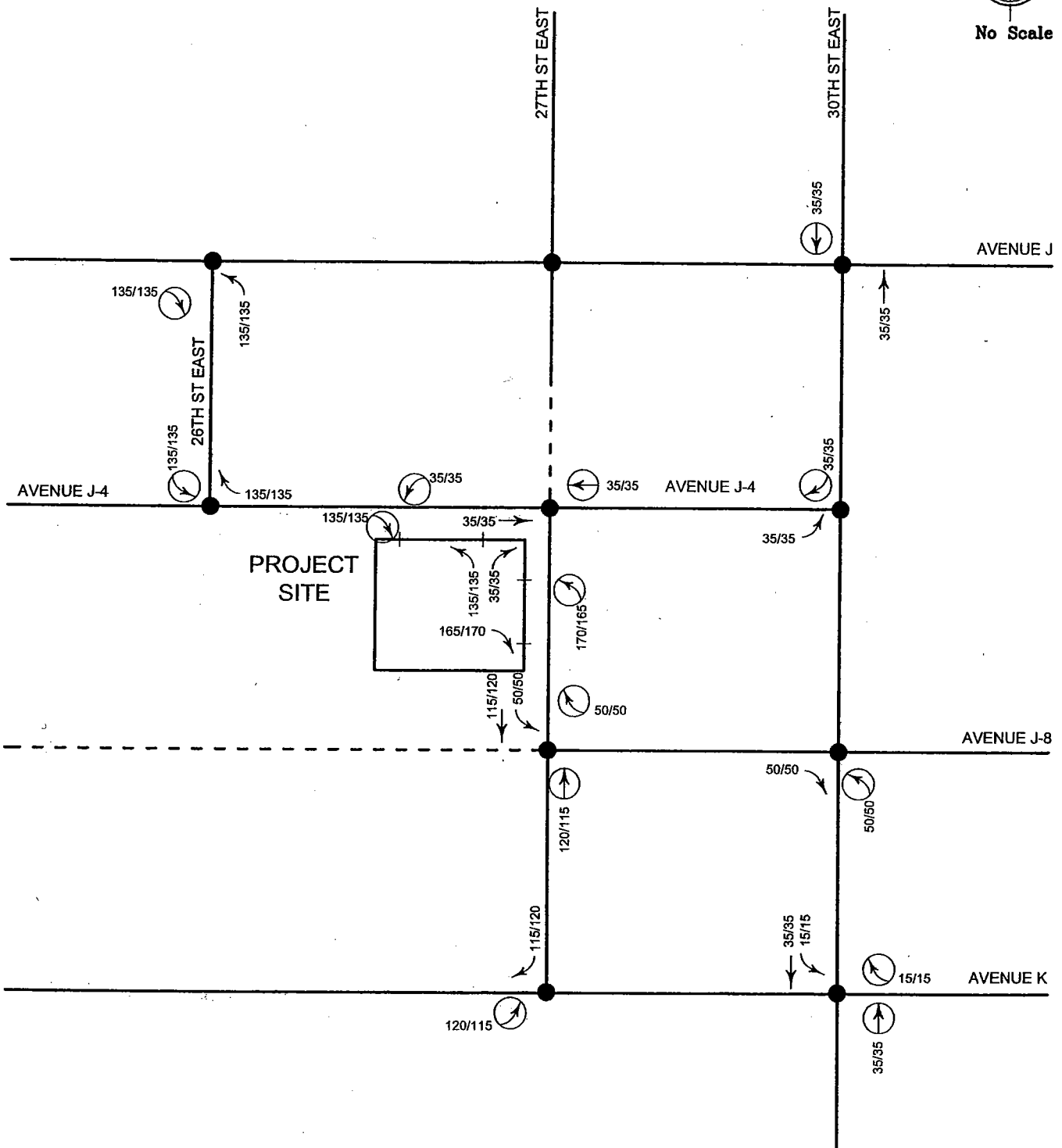
OPENING DAY (YEAR 2006) WITH PROJECT CONDITIONS

In order to analyze the potential traffic impacts of the proposed *Columbia Elementary School* project upon the surrounding street system, the ten study intersections were evaluated under the Opening Day (Year 2006) With Project (existing plus growth plus other plus project) conditions. The proposed project only traffic volumes at the study intersections (as previously illustrated on **Figure 11**) were then added to the Opening Day (Year 2006) Without Project volumes (previously shown on **Figure 8**), so the HCS intersection analyses could be recalculated for the Opening Day (Year 2006) With Project conditions. **Figure 13** illustrates the Opening Day (Year 2006) With Project (existing plus growth plus other plus project) AM and PM peak hour volumes at the ten study intersections. The Opening Day (Year 2006) With Project daily (ADT) volumes on the surrounding roadways are presented on **Figure 14**.



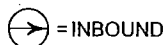
LEGEND

- = STUDY INTERSECTIONS
- ⊕ = GENERAL DISTRIBUTION



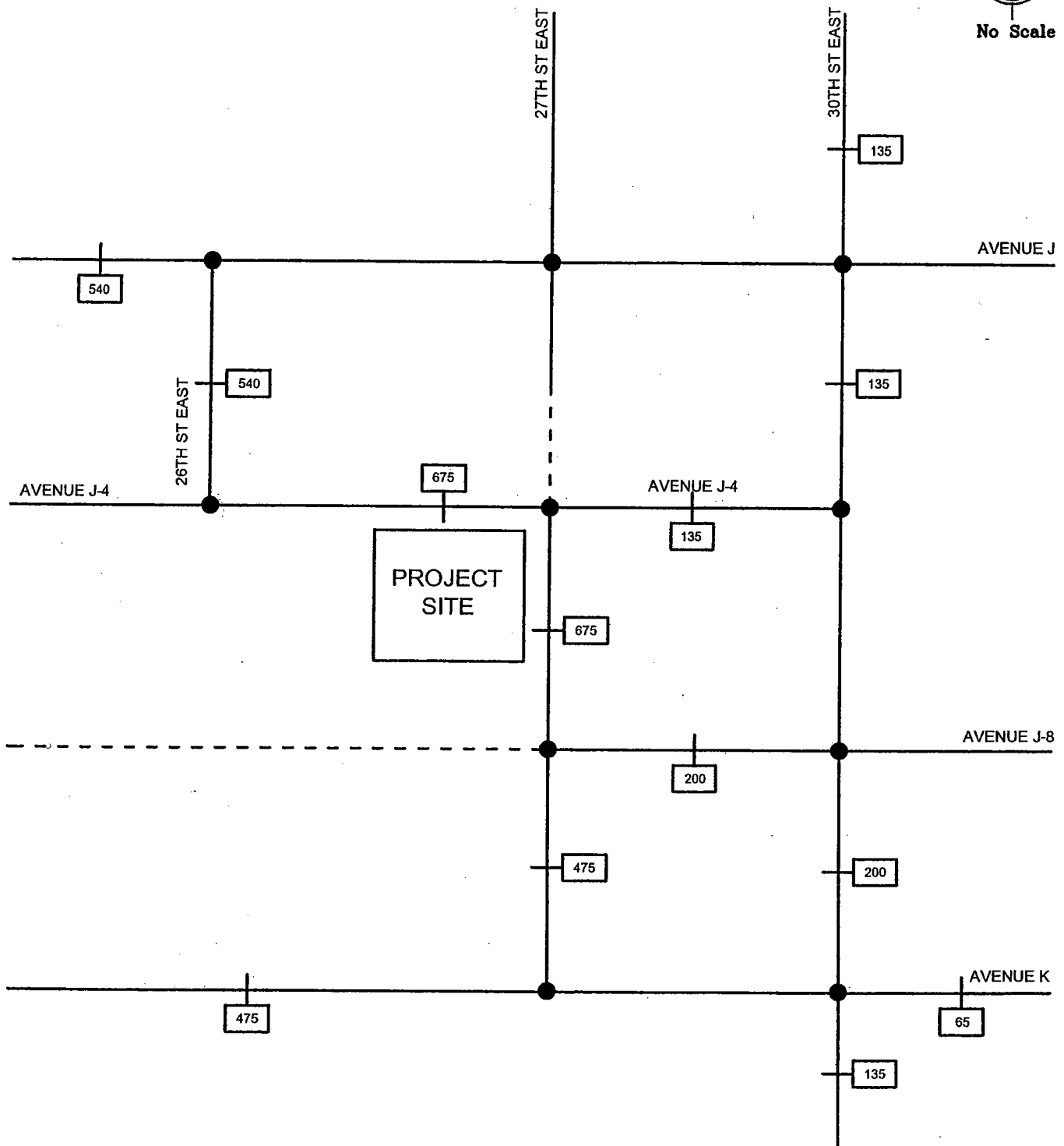
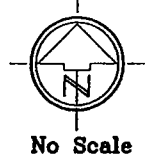
● = STUDY INTERSECTIONS

135/135=AM/PM PEAK HOUR VOLUMES



→ = OUTBOUND

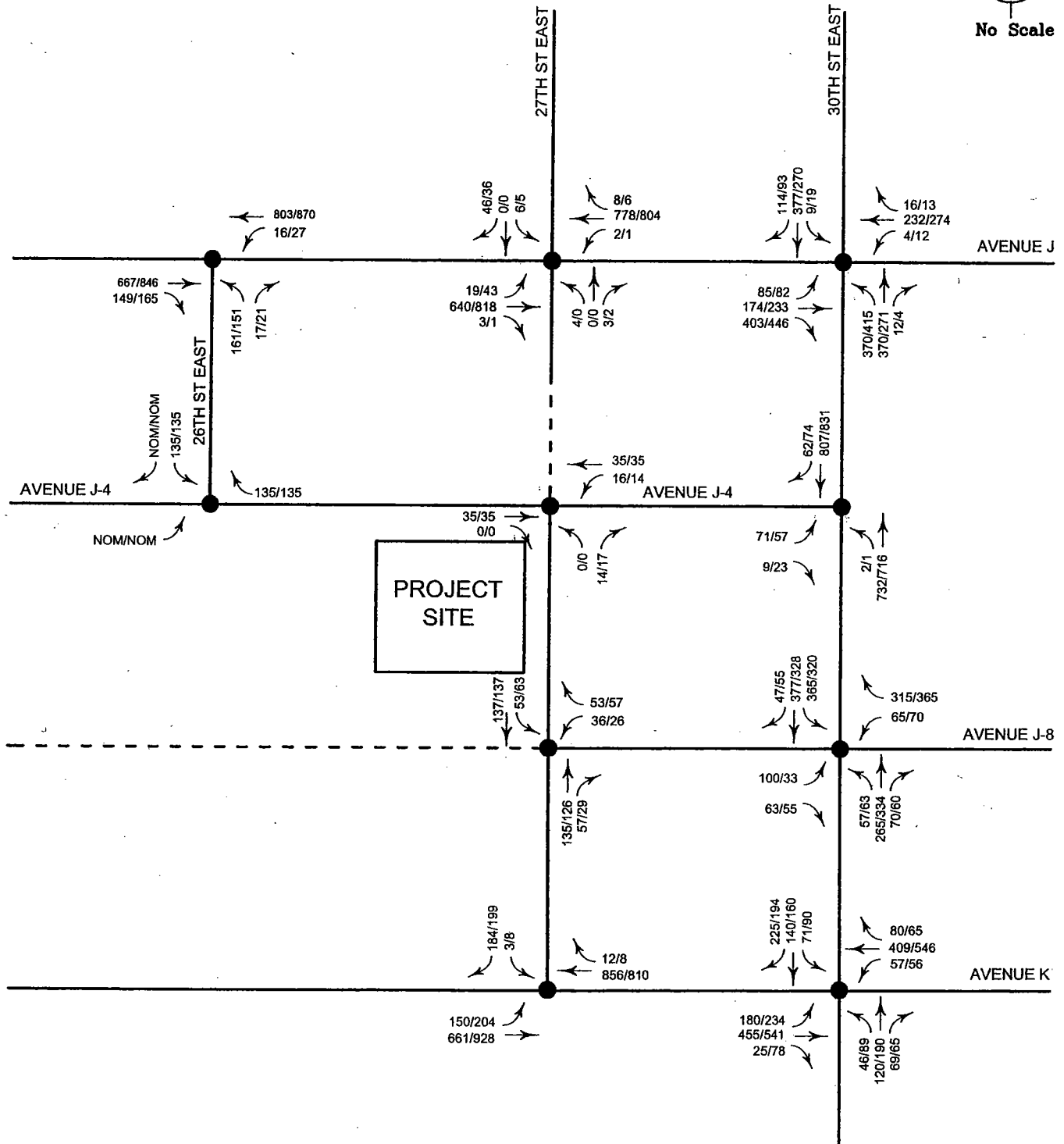
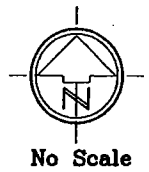
FIGURE 11
Project Only
Peak Hour Volumes



LEGEND

● = STUDY INTERSECTIONS

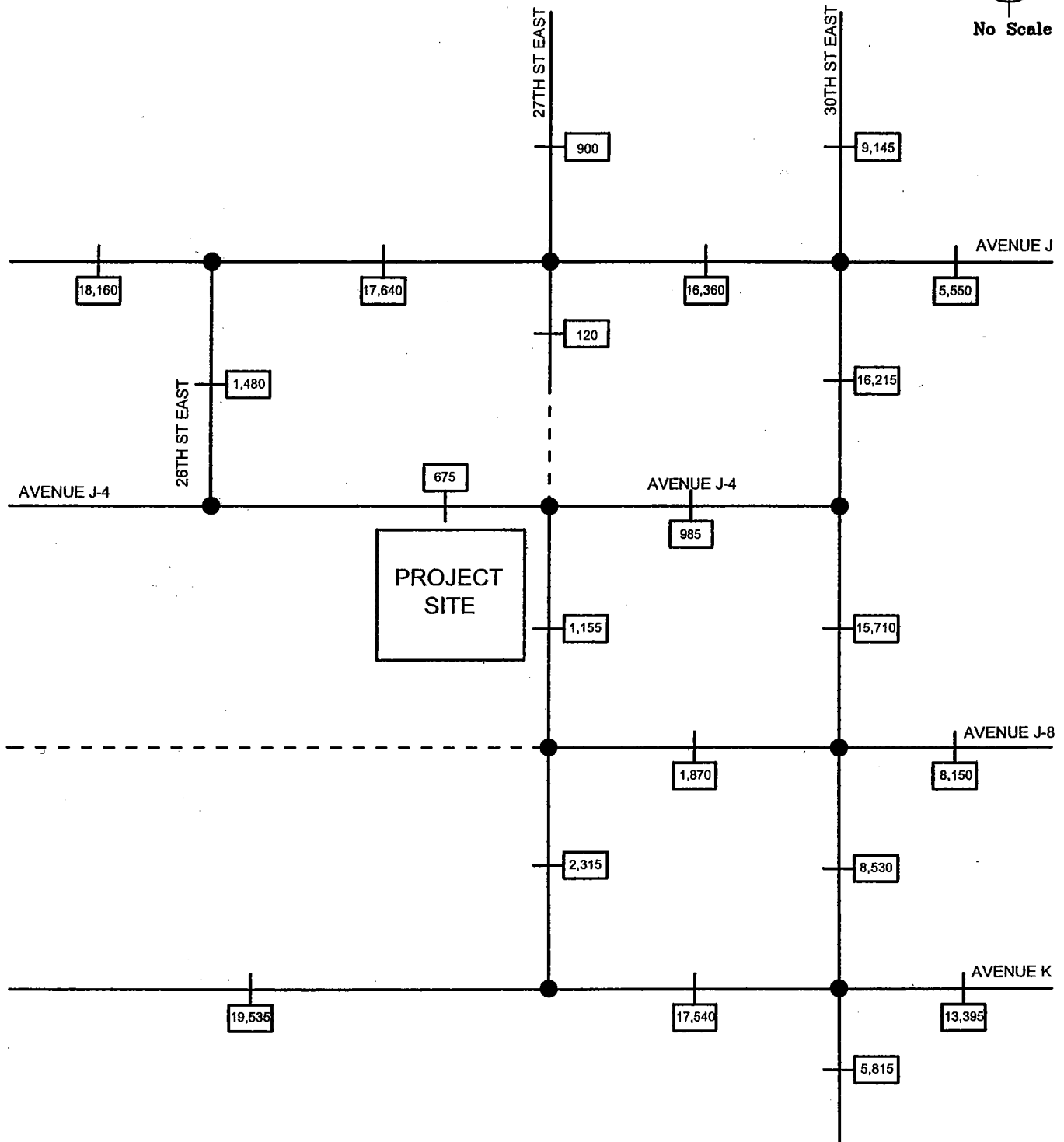
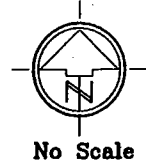
540 = TWO-WAY PROJECT ONLY DAILY VOLUMES



LEGEND

- = STUDY INTERSECTIONS
- 149/165 = AM/PM PEAK HOUR VOLUMES
- NOM = NOMINAL

FIGURE 13
Opening Day (Year 2006) With Project
(Existing + Growth + Other + Project)
Peak Hour Volumes



LEGEND

- = STUDY INTERSECTIONS
- 18,160 = ESTIMATED TWO-WAY DAILY VOLUMES

FIGURE 14
Opening Day (Year 2006) With Project
(Existing + Growth + Other + Project)
Daily (ADT) Volumes

Intersection Analyses - Opening Day (Year 2006) With Project Conditions

The Opening Day (Year 2006) With Project (existing plus growth plus other plus project) volumes, as shown on **Figure 13** (previously presented), were then utilized in the HCS intersection analyses in order to analyze the potential project impacts upon the ten study intersections. The intersection analyses for the Opening Day (Year 2006) With Project conditions also include the additional intersection legs and added traffic movements to two study intersections (27th Street East / Avenue J-4 and 26th Street East / Avenue J-4), which would result with the project related construction of Avenue J-4 from 27th Street East westerly to 26th Street East.

The Avenue J-4 connection would add the west leg to the 27th Street East / Avenue J-4 intersection, forming a "T"-shaped intersection. One approach lane is assumed for each leg and it is recommended that this study intersection be STOP sign controlled for all approaches. Similarly, the connection of Avenue J-4 would also create the east leg of the 26th Street East / Avenue J-4 intersection. This intersection would become a "T" intersection and it is recommended that it be STOP sign controlled for all approaches. Therefore, under the Opening Day (Year 2006) With Project conditions, both of these study intersections (27th Street East / Avenue J-4 and 26th Street East / Avenue J-4) were analyzed as All-Way STOP controlled intersections with one lane for each approach.

Also, as noted earlier in this traffic study, the intersection improvements (including signalization) which were necessary in order to achieve acceptable operating conditions under the Opening Day Without Project conditions are assumed to be implemented and in place for the Opening Day (Year 2006) With Project analyses conditions.

Utilizing the intersection volumes on **Figure 13**, the intersection geometrics assumed with the development of the proposed *Columbia Elementary School* project (discussed above), and the intersection improvements previously identified as necessary for the Opening Day Without Project conditions, the HCS intersection analyses were recalculated for the Opening Day (Year 2006) With Project conditions. **Table 1**, presented earlier in this study, shows that eight of the ten study intersections would operate with acceptable Levels of

Service (LOS A through C) during both the AM and PM peak hours under the Opening Day (Year 2006) With Project conditions. It can be concluded, therefore, that the proposed *Columbia Elementary School* project would not cause a significant traffic impact upon these eight study intersections in the project vicinity. The supporting HCS intersection analyses worksheets can be found in **Appendix C**.

Review of **Table 1** also shows that the remaining two study intersections would operate at an unacceptable Level of Service E or F during one or both of the peak hours with the addition of the proposed *Columbia Elementary School* project to the Opening Day (Year 2006) Without Project conditions. The two intersections which would operate unacceptably are: 26th Street East / Avenue J (LOS F - AM and PM) and 30th Street East / Avenue J-4 (LOS E - AM). **Appendix C** contains the supporting HCS intersection analyses worksheets.

Traffic Signal Warrant Analyses - Opening Day (Year 2006) With Project Conditions

The need for signalization was again examined at the unsignalized study intersections under the Opening Day (Year 2006) With Project (existing plus growth plus other plus project) conditions. The results of the traffic signal warrant analyses can be reviewed in the previously presented **Table 2** and the supporting *Caltrans* Traffic Signal Warrant worksheets can be referenced in **Appendix D**. In **Table 2**, it can be seen that two study intersections (26th Street East / Avenue J and 30th Street East / Avenue J-4) would satisfy the traffic signal warrant under the Opening Day (Year 2006) With Project conditions. The remaining unsignalized study intersections are not shown to warrant signalization with the addition of the proposed *Columbia Elementary School* project to the Opening Day (Year 2006) Without Project conditions.

Improvements - Opening Day (Year 2006) With Project Conditions

Improvements are shown to be necessary at two of the ten study intersections in order to achieve acceptable operations when the proposed *Columbia Elementary School* project is added to the Opening Day (Year 2006) conditions. The two locations which are operating unacceptably under the Opening Day (Year 2006) With Project conditions, and

which would require improvements, are the study intersections of 26th Street East / Avenue J and 30th Street East / Avenue J-4.

As previously noted in **Table 1**, the unsignalized 26th Street East / Avenue J intersection would operate unacceptably at Level of Service F during both peak hours and the unsignalized 30th Street East / Avenue J-4 intersection would have unacceptable LOS E operations during the AM peak hour under the Opening Day (Year 2006) With Project (existing plus growth plus other plus project) conditions. It is also noted in **Table 2** (provided earlier in this study) that the *Caltrans* Traffic Signal Warrant is satisfied at these two study intersections with the addition of the proposed *Columbia Elementary School* project traffic to the Opening Day (Year 2006) conditions. Implementation of traffic signals at the study intersections of 26th Street East / Avenue J and 30th Street East / Avenue J-4 would improve the intersection operations at both of these locations to an acceptable Level of Service A during both peak hours under the Opening Day (Year 2006) With Project conditions, as presented in **Table 1**. **Appendix C** provides the supporting HCS intersection analyses worksheets.

Roadway Segment Analyses - Opening Day (Year 2006) With Project Conditions

In order to address potential concerns regarding increased traffic on residential streets surrounding the proposed *Columbia Elementary School* project site, the amount of average daily traffic (ADT) on these roadways under the Opening Day (Year 2006) With Project conditions was evaluated. The total Opening Day (Year 2006) With Project daily traffic (ADT) volumes estimated for the residential roadway segments adjacent to and serving the proposed elementary school project site are listed below and are also illustrated on **Figure 14** (which was presented earlier in this study).

ROADWAY SEGMENTS	OPENING DAY (YEAR 2006) WITH PROJECT DAILY (ADT) VOLUMES
Avenue J-4, West of 27 th Street East	675
Avenue J-4, East of 27 th Street East	985
27 th Street East, South of Avenue J-4	1,155
27 th Street East, South of Avenue J-8	2,315
26 th Street East, South of Avenue J	1,480
Avenue J-8, East of 27 th Street East	1,870

All of the roadway segments examined in this traffic study within the vicinity of the proposed project are two-lane undivided roadways; except for the segment of Avenue J-8 between 27th Street East and 30th Street East, which is a two-lane roadway divided by a two-way left turn lane.

Roadway traffic operations are evaluated by the ratio of daily (ADT) traffic volumes to the estimated available daily roadway capacity [volume to capacity (V/C) ratio]. The County of Los Angeles has established capacity guidelines for various roadway geometrics. It is noted that for a two-lane divided roadway, the daily capacity is 14,500; however, the capacity for a two-lane undivided roadway is not provided by the County guidelines. A secondary source, *Residential Street Design and Traffic Control*¹², was referenced to obtain a capacity for a two-lane undivided roadway. Based upon the "moderate traffic" description of a residential street, which is typically a two-lane undivided roadway, a maximum daily volume of 8,000 vehicles per day (vpd) can be utilized. It should be noted that not all of the roadway segments analyzed within this study are considered a typical "Local Residential" street; therefore, the analyses can be considered conservative.

Utilizing the daily traffic (ADT) volumes and the daily capacities identified above, the volume to capacity (V/C) ratios were determined for the study roadway segments under the Opening Day (Year 2006) With Project conditions. The V/C ratios were then related

¹² *Residential Street Design and Traffic Control*; Institute of Transportation Engineers (ITE); 1989.

to Levels of Service (LOS), where LOS "A" is the best and LOS "F" is over capacity. The resulting Levels of Service (LOS) for the roadway segments analyzed within this study under the Opening Day (Year 2006) With Project conditions are presented below.

ROADWAY SEGMENTS	OPENING DAY (YEAR 2006) WITH PROJECT LEVELS OF SERVICE
Avenue J-4, West of 27 th Street East	A (675 / 8,000 = 0.08)
Avenue J-4, East of 27 th Street East	A (985 / 8,000 = 0.12)
27 th Street East, South of Avenue J-4	A (1,155 / 8,000 = 0.14)
27 th Street East, South of Avenue J-8	A (2,315 / 8,000 = 0.29)
26 th Street East, South of Avenue J	A (1,480 / 8,000 = 0.19)
Avenue J-8, East of 27 th Street East	A (1,870 / 14,500 = 0.13)

As shown above, all of the residential roadway segments in the vicinity of the proposed *Columbia Elementary School* project site would operate at an acceptable LOS A under the Opening Day (Year 2006) With Project conditions.

CIRCULATION RECOMMENDATIONS

With the development of the proposed *Columbia Elementary School* project, specifically the construction of Avenue J-4 from 27th Street East westerly to 26th Street East, improvements (added legs and movements) are assumed to be added to two study intersections (27th Street East / Avenue J-4 and 26th Street East / Avenue J-4). Review of **Table 1** (presented earlier in this traffic study) also indicates that improvements are required at five of the ten study intersections (27th Street East / Avenue J, 26th Street East / Avenue J, 30th Street East / Avenue J, 30th Street East / Avenue J-4, and 30th Street / Avenue J-8) under various analyses conditions in order to achieve acceptable operating conditions. **Figure 15** is provided to illustrate all of the circulation recommendations at the

intersections examined in this traffic study. These improvements, which are either assumed as a part of the development of the proposed *Columbia Elementary School* project or recommended to provide acceptable intersection operations, are also listed below.

INTERSECTIONS	IMPROVEMENTS ASSUMED WITH THE DEVELOPMENT OF COLUMBIA ELEMENTARY SCHOOL
27 th Street East / Avenue J-4	<ul style="list-style-type: none"> ◆ Add west leg of intersection to form a "T" intersection. (Assumed to consist of one lane which would provide eastbound through and right turn movements.) ◆ Westbound approach lane would provide left turn and through movements. ◆ Northbound approach lane would provide left turn and right turn movements. ◆ Install STOP signs for all approaches (All-Way STOP).
26 th Street East / Avenue J-4	<ul style="list-style-type: none"> ◆ Add east leg of intersection to form a "T" intersection. (Assumed to consist of one lane which would provide westbound through and right turn movements.) ◆ Eastbound approach lane would provide left turn and through movements. ◆ Southbound approach lane would provide left turn and right turn movements. ◆ Install STOP signs for all approaches (All-Way STOP).

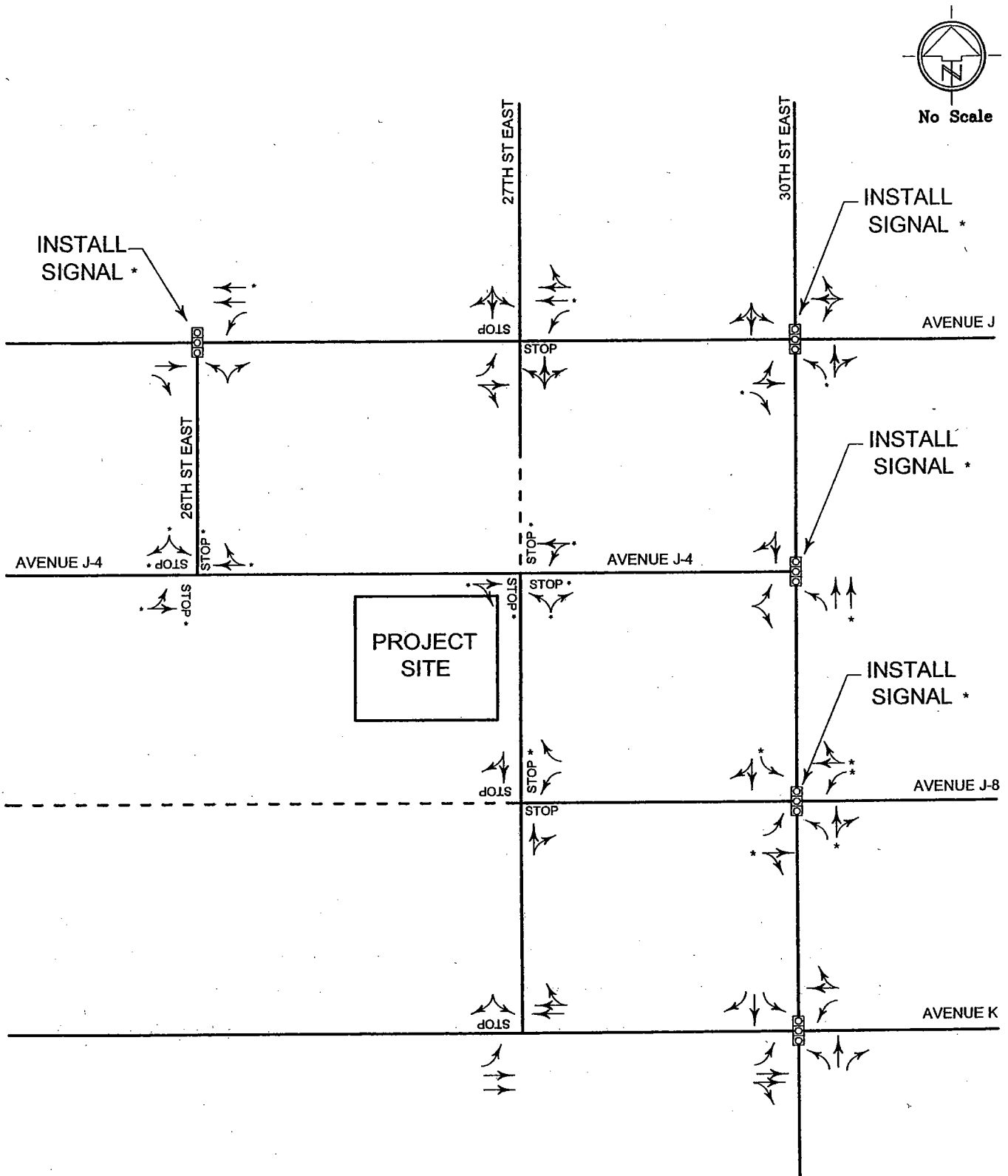
INTERSECTIONS	IMPROVEMENTS NEEDED TO ACHIEVE ACCEPTABLE INTERSECTION OPERATIONS	
	OPENING DAY (YEAR 2006) WITHOUT PROJECT CONDITIONS	OPENING DAY (YEAR 2006) WITH PROJECT CONDITIONS
27 th Street East / Avenue J	<ul style="list-style-type: none"> ◆ Install an additional westbound through lane (for a total of two). 	<ul style="list-style-type: none"> ◆ None.
26 th Street East / Avenue J	<ul style="list-style-type: none"> ◆ Install an additional westbound through lane (for a total of two). 	<ul style="list-style-type: none"> ◆ Signalization. (Warranted under Opening Day With Project conditions.)
30 th Street East / Avenue J ***	<ul style="list-style-type: none"> ◆ Signalization. (Previously warranted under Existing - Year 2004 conditions.) ◆ Install a separate northbound left turn lane. ◆ Install a separate eastbound right turn lane. 	<ul style="list-style-type: none"> ◆ None.
30 th Street East / Avenue J-4	<ul style="list-style-type: none"> ◆ Install an additional northbound through lane (for a total of two). 	<ul style="list-style-type: none"> ◆ Signalization. (Warranted under Opening Day With Project conditions.)
30 th Street East / Avenue J-8 ***	<ul style="list-style-type: none"> ◆ Signalization. (Warranted under Opening Day Without Project conditions.) ◆ Add the east leg to intersection. (Consist of one westbound left turn lane and one through / right combination lane.) ◆ Restripe remaining intersection legs to consist of one left turn lane and one through / right combination lane. 	<ul style="list-style-type: none"> ◆ None.
*** The improvements shown to be necessary at these two study intersections under the "Opening Day Without Project" conditions were identified in a previously completed traffic study (" <i>Eastside High School, City of Lancaster, Traffic Study</i> ", Willdan; July 9, 2004.		

It should be noted that currently the study intersection of 27th Street East / Avenue J-8 is a "T"-shaped intersection with Two-Way STOP control for the northbound and southbound approaches. Under the Opening Day (Year 2006) With Project conditions, this intersection (with Two-Way STOP control) is shown to have acceptable (LOS B) operations (as shown previously in **Table 1**.) For safety purposes, it is recommended that a STOP sign be installed for the westbound Avenue J-8 approach to the intersection. (This circulation recommendation is also illustrated on **Figure 15**.) As an ALL-Way STOP controlled location, the study intersection of 27th Street East / Avenue J-8 would continue to operate acceptably (at LOS A) under the Opening Day (Year 2006) With Project conditions. (The supporting HCS intersection analyses worksheets can be reviewed in **Appendix C**.)

SITE ACCESS AND ON-SITE CIRCULATION

Figure 2, which was presented earlier in this traffic study, illustrates the site plan developed for the proposed *Columbia Elementary School* project to be located on the southwest corner of 27th Street East and Avenue J-4 in the City of Lancaster. In general, the access to the project site and the on-site circulation appear to be adequate. Access to the elementary school is proposed via driveways on both Avenue J-4 and 27th Street East. "One-way drive-through" lanes are shown to be provided adjacent to each of the elementary school's parking lots (visitor lot on Avenue J-4 and staff lot on 27th Street East). These "one-way drive-through" lanes would serve as the drop-off / pick-up areas for students, as well as the ingress and egress points for the parking lots. It is recommended that appropriate signage be provided which identifies the one-way operations of the "drive-through lanes" (west to east on Avenue J-4 and north to south on 27th Street East) on the elementary school site. The exit driveways serving the school should be controlled with STOP signs.

It is also recommended that on-street parking be prohibited during school hours only on the street segments directly adjacent to the proposed *Columbia Elementary School* campus (on Avenue J-4 and 27th Street East). In addition, Avenue J-4 and 27th Street East should be striped to provide left turn channelization at the ingress driveways to the school



LEGEND

STOP = STOP SIGN

 = SIGNALIZED

* = IMPROVEMENTS

site. These conditions should be included as a part of the final street improvement, striping, and signing plans for the proposed elementary school project.

The final site plan for the proposed *Columbia Elementary School* project should be reviewed by a registered traffic engineer to ensure that adequate access and on-site circulation provisions are planned for the proposed elementary school site.

SUMMARY

This study has examined traffic factors related to the proposed *Columbia Elementary School* project to be located on the southwest corner of 27th Street East and Avenue J-4 in the City of Lancaster. Existing (Year 2004) conditions were reviewed and quantified. Traffic related to general area traffic growth and other area projects were included in these traffic analyses. Trip generation and assignment analyses were completed for the proposed elementary school project, in order to evaluate the potential project impacts upon the ten study intersections. Traffic signal warrant analyses were performed, where appropriate. Site access and on-site circulation were reviewed based on the proposed project's site plan.

The following are the principal findings of this study.

- 1) Under the Existing (Year 2004) conditions, all of the study intersections currently operate at acceptable Levels of Service (LOS A and B) during both the AM and PM peak hours. (The Avenue J-4 intersections with 27th Street East and 26th Street East were not analyzed under "Existing" or "Opening Day Without Project" conditions, due to very low volumes and non-conflicting traffic movements.)
- 2) Caltrans Traffic Signal Warrant worksheets were completed at the unsignalized study intersections. The traffic signal warrant (***Warrant 11 - Peak Hour Volume***) is only satisfied at one of the study intersections (30th Street East / Avenue J) under the Existing (Year 2004) conditions. Since the 30th Street East / Avenue J intersection is currently operating acceptably as an unsignalized intersection, the installation of a traffic signal is not recommended under the Existing (Year 2004) conditions.

- 3) Ambient growth volumes and other area project volumes were included in these traffic analyses of the study intersections. Per City Staff, a growth rate of two percent per year was utilized in this study to account for any general area traffic growth in the study area (up to the proposed project's Opening Day of August 2006) and also for any impacts related to other area projects not specifically identified. A total of 28 other area projects (within an approximate two mile radius of the proposed elementary school site) were identified for inclusion in these analyses. These other area projects are estimated to generate a total of 25,890 daily trip ends, of which 2,930 (1,265 In, 1,665 Out) trip ends would occur during the AM peak hour and 3,840 (2,120 In, 1,720 Out) trip ends would occur during the PM peak hour.
- 4) The ambient growth volumes plus the other area project volumes were added to the Existing (Year 2004) traffic volumes at the study intersections. Under the Opening Day (Year 2006) Without Project (existing plus growth plus other) conditions, three of the study intersections would continue to have acceptable operations (LOS A through C) during the AM and PM peak hours, while five of the study intersections would operate unacceptably (at LOS E or F) during one or both of the peak hours. The five study intersections which would have unacceptable operations are 27th Street East / Avenue J (LOS E - AM), 26th Street East / Avenue J (LOS E - PM), 30th Street East / Avenue J (LOS F - AM and PM), 30th Street East / Avenue J-4 (LOS E - AM), and 30th Street East / Avenue J-8 (LOS F - AM and PM). (The 27th Street East / Avenue J-4 and 26th Street East / Avenue J-4 intersections were not analyzed under "Existing" or "Opening Day Without Project" conditions.)
- 5) The unsignalized study intersections were again analyzed to determine if they would satisfy the *Caltrans* Traffic Signal Warrant under the Opening Day (Year 2006) Without Project conditions. The signal warrant was previously satisfied at the 30th Street East / Avenue J intersection under the Existing (Year 2004) conditions. Under the Opening Day (Year 2006) Without Project conditions, a traffic signal would be warranted at two study intersections: 27th Street East / Avenue K and 30th Street East / Avenue J-8. Since the 27th Street East / Avenue K intersection operates acceptably as an unsignalized intersection, the installation of a traffic signal would not be recommended under the Opening Day (Year 2006) Without Project conditions. The remaining unsignalized study intersections would not meet the warrant under the Opening Day (Year 2006) Without Project conditions.
- 6) Improvements are shown to be necessary at five of the study intersections in order to achieve acceptable operating conditions under the Opening Day (Year 2006) Without Project conditions. The implementation of warranted signalization at 30th Street East / Avenue J and at 30th Street East / Avenue J-8, along with other improvements which were identified as necessary at these locations in a previously completed traffic study¹³, would improve operations at these two study intersections to acceptable LOS B and C during both peak hours. At both 27th Street East /

¹³

"Eastside High School, City of Lancaster, Traffic Study"; [op.cit.](#).

Avenue J and 26th Street East / Avenue J, the addition of a westbound through lane (for a total of two) would improve the unacceptable LOS E operations to acceptable LOS C and D at both locations. The addition of an added northbound through lane (for a total of two) to 30th Street East / Avenue J-4 would improve the intersection operations from LOS E to an acceptable LOS D under the Opening Day (Year 2006) Without Project conditions. It is noted that these intersection improvements [necessary for acceptable operations under the Opening Day (Year 2006) Without Project conditions] are assumed to be in place for the Opening Day (Year 2006) With Project analyses conditions in this traffic study.

- 7) The proposed *Columbia Elementary School* project (850 students maximum) is estimated to generate a total of 1,350 daily trip ends, of which 675 (340 In, 335 Out) trip ends would occur during the AM peak hour and 675 (335 In, 340 Out) trip ends would occur during the PM peak hour. This estimate of project trip generation was developed based upon information provided by a representative of the *Eastside Union School District*.
- 8) Construction of the section of Avenue J-4 from 27th Street East westerly to 26th Street East is planned to occur in conjunction with the development of the proposed *Columbia Elementary School* project. This new segment of Avenue J-4 would create additional legs and added traffic movements to two study intersections: 27th Street East / Avenue J-4 and 26th Street East / Avenue J-4. The Avenue J-4 connection would add the west leg to the 27th Street East / Avenue J-4 intersection and would create the east leg of the 26th Street East / Avenue J-4 intersection, forming "T"-shaped intersections at both locations. At both 27th Street East / Avenue J-4 and 26th Street East / Avenue J-4, one approach lane is assumed for each intersection leg and All-Way STOP control is recommended.
- 9) The proposed project only volumes were then added to the Opening Day (Year 2006) Without Project volumes at the ten study intersections in order to analyze the potential traffic impacts of the proposed *Columbia Elementary School* project. Eight of the ten study intersections would operate with acceptable Levels of Service (LOS A through C) during both the AM and PM peak hours under the Opening Day (Year 2006) With Project (existing plus growth plus other plus project) conditions. It can be concluded, therefore, that the proposed *Columbia Elementary School* project does not cause a significant traffic impact upon these eight study intersections in the vicinity of the project site. The remaining two study intersections of 26th Street East / Avenue J and 30th Street East / Avenue J-4 are projected to have unacceptable (LOS E or F) operations during one or both peak hours when the proposed *Columbia Elementary School* project is added to the Opening Day (Year 2006) conditions.

- 10) The two study intersections of 26th Street East / Avenue J and 30th Street East / Avenue J-4 would satisfy the *Caltrans* warrant for traffic signalization under the Opening Day (Year 2006) With Project conditions. The remaining unsignalized study intersections do not meet the traffic signal warrant with the addition of the proposed *Columbia Elementary School* project to the Opening Day (Year 2006) conditions.
- 11) Improvements are necessary at the two study intersections of 26th Street East / Avenue J and 30th Street East / Avenue J-4 in order to achieve acceptable operations under the Opening Day (Year 2006) With Project conditions. With the implementation of warranted signalization at 26th Street East / Avenue J and at 30th Street East / Avenue J-4, the operations at both study intersections would be improved to an acceptable LOS A during the AM and PM peak hours under the Opening Day (Year 2006) With Project conditions.
- 12) In order to address potential concerns regarding increased daily traffic (ADT) volumes on various residential roadways in the vicinity of the proposed *Columbia Elementary School* project site, roadway capacity analyses were completed. All of the roadway segments analyzed would operate at an acceptable LOS A under Opening Day (Year 2006) With Project conditions.
- 13) In general, the site access and on-site circulation appear to be adequate for the proposed *Columbia Elementary School* project site. It is recommended, however, that the "drive-through lanes" which serve as the student drop-off / pick-up areas on the elementary school site be signed appropriately to identify the one-way operations of each lane (west to east on Avenue J-4 and north to south on 27th Street East). The exit driveways serving the school should be controlled with STOP signs. Another recommendation is that on-street parking be prohibited during school hours only on the street segments directly adjacent to the proposed *Columbia Elementary School* campus (on Avenue J-4 and 27th Street East). In addition, Avenue J-4 and 27th Street East should be striped to provide left turn channelization at the ingress driveways to the school site. These conditions should be included as a part of the final street improvement, striping, and signing plans for the proposed project. The final site plan for the proposed *Columbia Elementary School* project is recommended to be reviewed by a registered traffic engineer.

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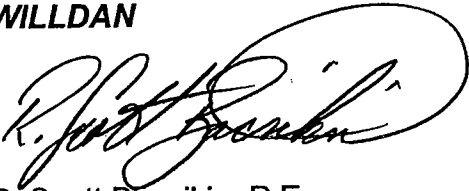
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We trust that these analyses will be of assistance to you, the school district, and the City of Lancaster. If you have any questions or require additional information, please do not hesitate to contact us.

Respectfully submitted,
WILLDAN

A handwritten signature in black ink, appearing to read "R. Scott Bacsikin", enclosed within a large, loopy oval flourish.

R. Scott Bacsikin, P.E.
Registered Professional Engineer
State of California Numbers C48774

RSB:CC
#14481

APPENDIX A

COUNT DATA

TRAFFIC DATA SERVICES, INC
SUMMARY OF VEHICULAR TURNING MOVEMENTS

N/S ST : 30TH ST EAST
E/W ST: AVE K
CITY: LANCASTER

FILENAME: 0140803
DATE: 1/13/04
DAY: TUESDAY

PERIOD BEGINS	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			Total
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
LANES:	1	1	1	1	1	1	1	2	0	1	1	0	
7:00 AM	8	14	5	1	19	2	6	40	9	8	38	6	156
15 AM	15	24	5	5	16	16	14	40	5	2	66	11	219
30 AM	7	20	11	7	25	11	15	48	5	6	42	15	212
45 AM	14	15	7	5	31	22	12	44	5	5	13	6	179
8:00 AM	15	12	3	5	16	6	6	46	9	5	21	7	151
15 AM	4	13	4	4	16	8	12	34	13	9	11	5	133
30 AM	3	17	5	7	21	11	17	38	10	5	31	2	167
45 AM	5	11	5	2	14	20	6	31	5	7	10	2	118

PEAK HOUR BEGINS AT:
700 AM

VOLUMES = 44 73 28 18 91 51 47 172 24 21 159 38 766

FILENAME: 0140803P
DATE: 1/13/04
DAY: TUESDAY

PERIOD BEGINS	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			Total
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	8	19	2	3	19	20	8	64	17	9	75	5	249
15 PM	21	17	6	6	15	6	6	53	8	7	62	9	216
30 PM	13	26	4	10	19	15	6	78	11	6	74	6	268
45 PM	12	25	11	4	22	12	5	66	11	4	57	3	232
5:00 PM	25	36	5	7	19	8	5	71	19	6	66	1	268
15 PM	14	23	7	5	25	12	9	63	21	7	56	5	247
30 PM	25	46	15	14	47	16	8	54	12	4	58	4	303
45 PM	21	28	2	11	22	16	5	58	22	3	58	4	250

PEAK HOUR BEGINS AT:
1700 PM

VOLUMES = 85 133 29 37 113 52 27 246 74 20 238 14 1068

COMMENTS: SIGNAL PHASING SEQUENCES:
NORTHBOUND & SOUTHBOUND
EASTBOUND & WESTBOUND
THERE ARE NO PROTECTED LEFT OR RIGHTS

TRAFFIC DATA SERVICES, INC
SUMMARY OF VEHICULAR TURNING MOVEMENTS

N/S ST : 27TH ST E
 E/W ST : AVE J
 CITY : LANCASTER

FILENAME: 0540302
 DATE: 5/04/04
 DAY: TUESDAY

PERIOD BEGINS	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			Total
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
LANES:	0	1	0	0	1	0	1	1	0	1	1	0	
7:00 AM	0	0	0	1	0	6	3	38	0	0	54	0	102
15 AM	1	0	0	3	0	8	6	43	1	0	59	1	122
30 AM	1	0	0	5	0	14	2	77	0	1	104	4	208
45 AM	3	0	3	0	0	11	2	60	2	1	103	2	187
8:00 AM	0	0	0	1	0	10	4	55	0	0	87	1	158
15 AM	0	0	0	0	0	4	7	34	1	0	78	1	125
30 AM	0	0	0	2	0	7	6	35	0	1	62	2	115
45 AM	0	0	1	3	0	5	2	37	0	0	66	5	119
9:00 AM	0	0	0	5	0	6	6	40	0	1	56	7	121
15 AM	0	0	0	2	0	5	5	41	0	0	61	8	122

PEAK HOUR BEGINS AT:

730 AM

VOLUMES = 4 0 3 6 0 39 15 226 3 2 372 8 678

FILENAME: 0540302P

DATE: 5/04/04

DAY: TUESDAY

PERIOD BEGINS	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			Total
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
3:00 PM	0	0	0	4	0	2	6	88	0	1	84	0	185
15 PM	0	0	0	2	0	8	8	87	0	0	85	3	193
30 PM	0	0	1	1	0	4	6	73	0	2	93	3	183
45 PM	0	0	0	0	0	2	10	75	0	0	82	2	171
4:00 PM	0	0	0	1	0	9	5	90	0	0	95	3	203
15 PM	0	0	0	2	0	5	2	79	0	0	103	0	191
30 PM	0	0	2	2	0	4	9	92	1	1	74	1	186
45 PM	0	0	0	2	1	3	5	71	0	0	69	1	152
5:00 PM	0	0	0	1	0	8	11	81	0	0	91	5	197
15 PM	0	0	0	0	0	8	10	78	0	0	86	0	182
30 PM	0	1	0	0	0	8	8	80	0	0	68	2	167
45 PM	0	0	0	1	0	4	9	74	0	0	71	1	160

PEAK HOUR BEGINS AT:

1545 PM

VOLUMES = 0 0 2 5 0 20 26 336 1 1 354 6 751

COMMENTS: CONTROL TYPE = 2-WAY STOP (NB & SB).

TRAFFIC DATA SERVICES, INC
SUMMARY OF VEHICULAR TURNING MOVEMENTS

N/S ST : 27TH ST E
 E/W ST: AVE J-4
 CITY: LANCASTER

FILENAME: 0540303
 DATE: 5/04/04
 DAY: TUESDAY

PERIOD BEGINS	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			Total
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
15 AM	0	0	5	0	0	0	0	0	0	9	0	0	14
30 AM	0	0	2	0	0	0	0	0	0	2	0	0	4
45 AM	0	0	4	0	0	0	0	0	0	3	0	0	7
8:00 AM	0	0	2	0	0	0	0	0	0	1	0	0	3
15 AM	0	0	2	0	0	0	0	0	0	2	0	0	4
30 AM	0	0	6	0	0	0	0	0	0	3	0	0	9
45 AM	0	0	1	0	0	0	0	0	0	1	0	0	2
9:00 AM	0	0	2	0	0	0	0	0	0	2	0	0	4
15 AM	0	0	3	0	0	0	0	0	0	3	0	0	6

PEAK HOUR BEGINS AT:
 715 AM

VOLUMES = 0 0 13 0 0 0 0 0 0 15 0 0 28

FILENAME: 0540303P
 DATE: 5/05/04
 DAY: WEDNESDAY

PERIOD BEGINS	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			Total
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
3:00 PM	0	0	10	0	0	0	0	0	0	5	1	0	16
15 PM	0	0	3	0	0	0	0	0	0	1	0	0	4
30 PM	0	0	1	0	1	0	0	0	0	3	0	0	5
45 PM	0	0	2	0	0	0	0	0	0	4	0	0	6
4:00 PM	0	0	1	0	0	0	0	0	0	2	0	0	3
15 PM	0	0	5	0	0	0	0	0	0	3	0	0	8
30 PM	0	0	5	0	0	0	0	0	0	2	0	0	7
45 PM	0	0	2	0	0	0	0	0	0	2	0	0	4
5:00 PM	0	0	5	0	0	0	0	0	0	5	0	0	10
15 PM	0	0	0	0	1	0	0	0	0	2	0	0	3
30 PM	0	0	2	0	0	0	0	0	0	2	0	0	4
45 PM	0	0	5	0	0	0	0	0	0	1	0	0	6

PEAK HOUR BEGINS AT:
 1500 PM

VOLUMES = 0 0 16 0 1 0 0 0 0 13 1 0 31

COMMENTS: CONTROL TYPE = NONE

TRAFFIC DATA SERVICES, INC
SUMMARY OF VEHICULAR TURNING MOVEMENTS

N/S ST : 27TH ST E
 E/W ST: AVE J-8
 CITY: LANCASTER

FILENAME: 0540304
 DATE: 5/05/04
 DAY: WEDNESDAY

PERIOD BEGINS	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			Total
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
LANES:		1	0	0	1					1	1	0	
7:00 AM	0	0	10	0	5	0	0	0	0	4	0	0	19
15 AM	0	0	10	0	1	0	0	0	0	3	0	1	15
30 AM	0	3	14	0	4	0	0	0	0	11	0	1	33
45 AM	0	3	15	1	6	0	0	1	0	14	0	2	42
8:00 AM	0	4	11	2	10	0	0	0	0	6	0	0	33
15 AM	0	4	14	0	1	0	2	0	0	3	0	0	24
30 AM	0	0	12	1	3	0	0	0	0	10	0	0	26
45 AM	0	0	9	0	3	0	0	0	0	9	0	1	22
9:00 AM	0	2	1	0	3	0	0	0	0	7	0	0	13
15 AM	0	2	4	1	1	0	0	0	0	3	0	1	12

PEAK HOUR BEGINS AT:

730 AM

VOLUMES =	0	14	54	3	21	0	2	1	0	34	0	3	132
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FILENAME: 0540304P

DATE: 5/04/04

DAY: TUESDAY

PERIOD BEGINS	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			Total
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
3:00 PM	0	3	3	1	5	0	0	0	0	5	0	2	19
15 PM	0	2	6	5	6	0	0	0	0	8	0	3	30
30 PM	0	3	7	2	2	0	0	0	0	5	0	3	22
45 PM	0	3	8	1	6	0	0	0	0	6	0	0	24
4:00 PM	0	2	7	4	2	0	0	0	0	6	0	1	22
15 PM	0	3	6	8	2	0	0	0	0	10	0	0	29
30 PM	0	0	4	1	3	0	0	0	0	2	0	0	10
45 PM	0	3	3	0	3	0	0	0	0	1	0	4	14
5:00 PM	0	1	1	1	1	0	0	0	0	2	0	1	7
15 PM	0	1	3	2	2	0	0	0	0	2	0	0	10
30 PM	0	2	1	2	1	0	0	0	0	2	0	1	9
45 PM	0	1	2	1	1	0	0	0	0	3	0	0	8

PEAK HOUR BEGINS AT:

1515 PM

VOLUMES =	0	10	28	12	16	0	0	0	0	25	0	7	98
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COMMENTS: CONTROL TYPE = 2-WAY STOP (NB & SB).

TRAFFIC DATA SERVICES, INC
SUMMARY OF VEHICULAR TURNING MOVEMENTS

N/S ST : 27TH ST E
 E/W ST: AVE K
 CITY: LANCASTER

FILENAME: 0540305
 DATE: 5/04/04
 DAY: TUESDAY

PERIOD BEGINS	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			Total
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
LANES:				0	1	0	1	2			2	0	
7:00 AM				1		12	0	48			68	2	131
15 AM				1		10	6	61			79	3	160
30 AM				1		15	5	49			118	3	191
45 AM				0		25	7	61			132	4	229
8:00 AM				1		11	8	73			93	1	187
15 AM				1		7	4	52			69	0	133
30 AM				0		16	11	54			94	3	178
45 AM				1		12	5	47			79	1	145
9:00 AM				0		13	5	28			63	0	109
15 AM				1		6	7	36			61	2	113

PEAK HOUR BEGINS AT:
 715 AM

VOLUMES = 0 0 0 3 0 61 26 244 0 0 422 11 767

FILENAME: 0540305P
 DATE: 5/04/04
 DAY: TUESDAY

PERIOD BEGINS	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			Total
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
3:00 PM				1		21	19	89			91	0	221
15 PM				0		12	16	68			108	0	204
30 PM				0		19	21	97			103	1	241
45 PM				2		15	14	84			86	2	203
4:00 PM				2		9	15	99			84	3	212
15 PM				4		17	22	98			82	3	226
30 PM				2		12	20	94			74	4	206
45 PM				3		18	14	98			89	1	223
5:00 PM				1		14	24	109			94	5	247
15 PM				2		15	17	91			88	2	215
30 PM				2		14	14	120			86	0	236
45 PM				3		13	15	71			69	2	173

PEAK HOUR BEGINS AT:
 1645 PM

VOLUMES = 0 0 0 8 0 61 69 418 0 0 357 8 921

COMMENTS: CONTROL TYPE = 1-WAY STOP (SB).

TRAFFIC DATA SERVICES, INC
SUMMARY OF VEHICULAR TURNING MOVEMENTS

N/S ST : 26TH ST E
 E/W ST: AVE J
 CITY: LANCASTER

FILENAME: 0540301
 DATE: 5/04/04
 DAY: TUESDAY

PERIOD BEGINS	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			Total
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
LANES:	0	1	0					1	1	1	1		
7:00 AM	4		1					47	1	0	59		112
15 AM	7		3					55	4	1	74		144
30 AM	7		8					64	3	8	99		189
45 AM	5		3					58	3	3	117		189
8:00 AM	6		2					71	3	3	101		186
15 AM	2		3					27	4	0	59		95
30 AM	1		0					39	4	0	52		96
45 AM	2		6					35	2	2	87		134
9:00 AM	3		8					33	3	4	64		115
15 AM	3		4					40	3	3	53		106

PEAK HOUR BEGINS AT:
 715 AM

VOLUMES = 25 0 16 0 0 0 0 248 13 15 391 0 708

FILENAME: 0540301P
 DATE: 5/04/04
 DAY: TUESDAY

PERIOD BEGINS	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			Total
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
3:00 PM	4		8					93	6	4	101		216
15 PM	5		8					82	6	11	80		192
30 PM	4		2					79	8	10	126		229
45 PM	2		2					93	9	1	96		203
4:00 PM	9		1					84	3	6	97		200
15 PM	6		2					85	5	3	94		195
30 PM	6		0					110	7	7	74		204
45 PM	8		1					57	8	1	59		134
5:00 PM	11		1					88	8	2	96		206
15 PM	6		1					82	7	0	88		184
30 PM	4		3					88	10	0	77		182
45 PM	2		1					82	7	1	80		173

PEAK HOUR BEGINS AT:
 1500 PM

VOLUMES = 15 0 20 0 0 0 0 347 29 26 403 0 840

COMMENTS: CONTROL TYPE = 1-WAY STOP (NB).

TRAFFIC DATA SERVICES, INC
SUMMARY OF VEHICULAR TURNING MOVEMENTS

N/S ST : 30TH ST EAST
E/W ST: AVE J
CITY: LANCASTER

FILENAME: 0140801
DATE: 1/13/04
DAY: TUESDAY

PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			Total
BEGINS	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
7:00 AM	9	30	2	2	16	4	6	25	3	3	29	0	129
15 AM	13	82	2	2	45	15	22	29	6	0	33	5	254
30 AM	7	86	3	1	58	25	22	38	8	1	49	1	299
45 AM	13	37	2	0	68	22	12	46	9	2	50	1	262
8:00 AM	24	36	2	2	29	10	6	29	18	0	62	0	218
15 AM	12	41	0	0	32	6	5	19	7	0	30	0	152
30 AM	9	84	0	1	62	5	12	14	15	1	43	0	246
45 AM	10	26	1	0	42	15	15	23	7	0	49	1	189

PEAK HOUR BEGINS AT:

715 AM

VOLUMES = 57 241 9 5 200 72 62 142 41 3 194 7 1033

FILENAME: 0140801P

DATE: 1/14/04

DAY: WEDNESDAY

PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			Total
BEGINS	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	10	27	0	0	23	18	20	35	16	1	30	5	185
15 PM	12	27	1	1	40	15	5	35	20	0	49	3	208
30 PM	13	31	0	0	26	18	5	43	14	1	45	1	197
45 PM	15	22	0	3	52	15	12	36	23	2	55	1	236
5:00 PM	16	24	0	1	19	19	5	39	15	1	48	1	188
15 PM	14	26	1	5	29	14	10	54	28	4	49	1	235
30 PM	13	25	1	0	22	10	7	48	15	1	66	4	212
45 PM	9	28	1	1	21	15	19	43	35	1	49	1	223

PEAK HOUR BEGINS AT:

1645 PM

VOLUMES = 58 97 2 9 122 58 34 177 81 8 218 7 871

COMMENTS:

TRAFFIC DATA SERVICES, INC
SUMMARY OF VEHICULAR TURNING MOVEMENTS

N/S ST : 30TH ST E
 E/W ST: AVE J-4
 CITY: LANCASTER

FILENAME: 0540306
 DATE: 5/04/04
 DAY: TUESDAY

PERIOD BEGINS	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			Total
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
LANES:	1	1			1	0	0	1	0				
7:00 AM	1	62			42	1	10		5				121
15 AM	0	83			31	8	10		0				132
30 AM	0	79			83	7	7		5				181
45 AM	2	39			55	5	11		2				114
8:00 AM	0	130			76	6	6		2				220
15 AM	0	56			52	2	7		5				122
30 AM	1	32			37	7	7		1				85
45 AM	0	29			31	6	8		2				76
9:00 AM	0	25			19	4	11		2				61
15 AM	1	23			24	8	5		3				64

PEAK HOUR BEGINS AT:
 715 AM

VOLUMES = 2 331 0 0 245 26 34 0 9 0 0 0 647

FILENAME: 0540306P
 DATE: 5/04/04
 DAY: TUESDAY

PERIOD BEGINS	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			Total
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
3:00 PM	0	34			29	5	6		1				75
15 PM	1	38			54	10	6		5				114
30 PM	3	41			60	15	5		7				131
45 PM	0	44			89	5	4		3				145
4:00 PM	0	35			93	10	3		3				144
15 PM	1	34			71	5	1		0				112
30 PM	0	40			101	6	3		4				154
45 PM	1	39			89	10	4		4				147
5:00 PM	0	39			87	11	6		5				148
15 PM	0	44			60	10	8		9				131
30 PM	1	38			29	5	6		1				80
45 PM	0	34			54	5	1		6				100

PEAK HOUR BEGINS AT:
 1630 PM

VOLUMES = 1 162 0 0 337 37 21 0 22 0 0 0 580

COMMENTS: CONTROL TYPE = 1-WAY STOP (EB).

TRAFFIC DATA SERVICES, INC
SUMMARY OF VEHICULAR TURNING MOVEMENTS

N/S ST : 30TH ST EAST
E/W ST: AVE J-8
CITY: LANCASTER

FILENAME: 0140806
DATE: 1/14/04
DAY: WEDNESDAY

PERIOD BEGINS	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			Total
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
LANES:	1	1			1	0	1		1				
7:00 AM	1	33			26	4	10		2				76
15 AM	0	62			47	6	30		2				147
30 AM	2	59			61	18	37		5				182
45 AM	4	26			51	14	13		3				111
8:00 AM	1	40			24	7	15		2				89
15 AM	2	32			26	5	19		0				84
30 AM	1	46			48	23	39		2				159
45 AM	1	20			25	15	48		3				112

PEAK HOUR BEGINS AT:

715 AM

VOLUMES =	7	187	0	0	183	45	95	0	12	0	0	0	529
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FILENAME: 0140806P

DATE: 1/13/04

DAY: TUESDAY

PERIOD BEGINS	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			Total
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	3	35			27	11	4		1				81
15 PM	0	38			47	16	9		4				114
30 PM	3	27			26	9	9		0				74
45 PM	1	35			45	13	8		2				104
5:00 PM	4	33			38	14	5		0				94
15 PM	3	37			30	8	8		1				87
30 PM	4	41			50	17	10		2				124
45 PM	2	40			38	11	8		1				100

PEAK HOUR BEGINS AT:

1645 PM

VOLUMES =	12	146	0	0	163	52	31	0	5	0	0	0	409
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COMMENTS:

APPENDIX B

2000 HIGHWAY CAPACITY MANUAL

(HCS 2000)

EXPLANATION OF LEVEL OF SERVICE

APPENDIX B

LEVEL OF SERVICE CRITERIA HCS 2000

SIGNALIZED INTERSECTIONS:

LEVEL OF SERVICE	STOPPED DELAY PER VEHICLE (SEC)
A	≤ 10.0
B	> 10.0 to 20.0
C	> 20.0 to 35.0
D	> 35.0 to 55.0
E	> 55.0 to 80.0
F	> 80.0

UNSIGNALIZED INTERSECTIONS:

LEVEL OF SERVICE	STOPPED DELAY PER VEHICLE (SEC)
A	≤ 10.0
B	> 10.0 to 15.0
C	> 15.0 to 25.0
D	> 25.0 to 35.0
E	> 35.0 to 50.0
F	> 50.0

APPENDIX B

HCS 2000 LEVEL OF SERVICE DESCRIPTIONS FOR INTERSECTIONS

LEVEL OF SERVICE	DESCRIPTION
A	<i>Low volumes; high speeds; speed not restricted by other vehicles; all signal cycles clear with no vehicles; all signal cycles clear with no vehicles waiting through more than one signal cycle.</i>
B	<i>Operating speeds beginning to be affected by other traffic; between one and ten percent of the signal cycles have one or more vehicles which wait through more than one signal cycle during peak traffic periods.</i>
C	<i>Operating speeds and maneuverability closely controlled by other traffic; between 11 and 30 percent of the signal cycles have one or more vehicles which wait through more than one signal cycle during peak traffic periods; recommended ideal design standard.</i>
D	<i>Tolerable operating speeds; 31 to 70 percent of the signal cycles have one or more vehicles which wait through more than one signal cycle during traffic periods; often used as design standard in urban areas.</i>
E	<i>Capacity; the maximum traffic volumes an intersection can accommodate; restricted speeds; 71 to 100 percent of the signal cycles have one or more vehicles which wait through more than one signal cycle during peak traffic periods.</i>
F	<i>Long queues of traffic; unstable flow; stoppages of long duration; traffic volume and traffic speed can drop to zero; traffic volume will be less than the volume which occurs at Level of Service E.</i>

APPENDIX C

HCS 2000

INTERSECTION ANALYSES

WORKSHEETS

Existing (Year 2004) Conditions

SHORT REPORT - SIGNALIZED

General Information

Analyst **C. CARDEN**
 Agency or Co. **WILLDAN**
 Date Performed **5/7/2004**
 Time Period **AM PEAK HOUR**

Site Information

Intersection **30TH ST. E. & AVE. K**
 Area Type **All other areas**
 Jurisdiction **CITY OF LANCASTER**
 Analysis Year **EXISTING CONDITIONS**

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	1	0	1	1	1	1	1	1
Lane group	L	TR		L	TR		L	T	R	L	T	R
Volume (vph)	47	172	24	21	159	38	44	73	28	18	91	51
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival type	3	3		3	3		3	3	3	3	3	3
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0		0	0		0	0		0	0		0
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0	0	0	0	0
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 30.0	G =	G =	G =	G = 24.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25

Cycle Length C = 60.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	49	206		22	207		46	77	29	19	96	54
Lane group cap.	579	1772		592	923		528	760	646	537	760	646
v/c ratio	0.08	0.12		0.04	0.22		0.09	0.10	0.04	0.04	0.13	0.08
Green ratio	0.50	0.50		0.50	0.50		0.40	0.40	0.40	0.40	0.40	0.40
Unif. delay d1	7.8	8.0		7.6	8.4		11.2	11.3	11.0	11.0	11.4	11.2
Delay factor k	0.11	0.11		0.11	0.11		0.11	0.11	0.11	0.11	0.11	0.11
Increm. delay d2	0.1	0.0		0.0	0.1		0.1	0.1	0.0	0.0	0.1	0.1
PF factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	7.9	8.0		7.7	8.6		11.3	11.3	11.0	11.0	11.5	11.2
Lane group LOS	A	A		A	A		B	B	B	B	B	B
Apprch. delay	8.0			8.5			11.2			11.3		
Approach LOS	A			A			B			B		
Intersec. delay	9.4			Intersection LOS						A		

SHORT REPORT - SIGNALIZED

General Information				Site Information			
Analyst	C. CARDEN			Intersection	30TH ST. E. & AVE. K		
Agency or Co.	WILLDAN			Area Type	All other areas		
Date Performed	5/7/2004			Jurisdiction	CITY OF LANCASTER		
Time Period	PM PEAK HOUR			Analysis Year	EXISTING CONDITIONS		

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	1	0	1	1	1	1	1	1
Lane group	L	TR		L	TR		L	T	R	L	T	R
Volume (vph)	27	246	74	20	238	14	85	133	29	37	113	52
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival type	3	3		3	3		3	3	3	3	3	3
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0		0	0		0	0		0	0		0
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0	0	0	0	0
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 30.0	G =	G =	G =	G = 24.0	G =	G =	G =				
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =				
Duration of Analysis (hrs) = 0.25								Cycle Length C = 60.0				

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
Adj. flow rate	28	337		21	266		89	140	31	39	119	55
Lane group cap.	524	1743		517	942		517	760	646	507	760	646
v/c ratio	0.05	0.19		0.04	0.28		0.17	0.18	0.05	0.08	0.16	0.09
Green ratio	0.50	0.50		0.50	0.50		0.40	0.40	0.40	0.40	0.40	0.40
Unif. delay d1	7.7	8.3		7.7	8.7		11.6	11.7	11.0	11.1	11.5	11.2
Delay factor k	0.11	0.11		0.11	0.11		0.11	0.11	0.11	0.11	0.11	0.11
Increm. delay d2	0.0	0.1		0.0	0.2		0.2	0.1	0.0	0.1	0.1	0.1
PF factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	7.7	8.4		7.7	8.9		11.8	11.8	11.0	11.2	11.6	11.2
Lane group LOS	A	A		A	A		B	B	B	B	B	B
Apprch. delay	8.3			8.8			11.7			11.4		
Approach LOS	A			A			B			B		
Intersec. delay	9.8			Intersection LOS						A		

TWO-WAY STOP CONTROL SUMMARY

General Information				Site Information				
Analyst	C. CARDEN			Intersection	27TH ST. E. & AVE. J			
Agency/Co.	WILLDAN			Jurisdiction	CITY OF LANCASTER			
Date Performed	5/7/2004			Analysis Year	EXISTING CONDITIONS			
Analysis Time Period	AM PEAK HOUR							
Project Description 14443 / 3000								
East/West Street: AVENUE J				North/South Street: 27TH STREET EAST				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	15	226	3	2	372	8		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate (veh/h)	15	237	3	2	391	8		
Proportion of heavy vehicles, P _{HV}	0	--	--	0	--	--		
Median type	Undivided							
RT Channelized?			0			0		
Lanes	1	1	0	1	1	0		
Configuration	L		TR	L		TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	4	0	3	6	0	39		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate (veh/h)	4	0	3	6	0	41		
Proportion of heavy vehicles, P _{HV}	0	0	0	0	0	0		
Percent grade (%)	0			0				
Flared approach		N			N			
Storage		0			0			
RT Channelized?			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Control Delay, Queue Length, Level of Service								
Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
Volume, v (vph)	15	2		7			47	
Capacity, c _m (vph)	1171	1339		449			599	
v/c ratio	0.01	0.00		0.02			0.08	
Queue length (95%)	0.04	0.00		0.05			0.25	
Control Delay (s/veh)	8.1	7.7		13.1			11.5	
LOS	A	A		B			B	
Approach delay (s/veh)	--	--	13.1			11.5		
Approach LOS	--	--	B			B		

TWO-WAY STOP CONTROL SUMMARY

General Information				Site Information				
Analyst	C. CARDEN			Intersection	27TH ST. E. & AVE. J			
Agency/Co.	WILLDAN			Jurisdiction	CITY OF LANCASTER			
Date Performed	5/7/2004			Analysis Year	EXISTING CONDITIONS			
Analysis Time Period	PM PEAK HOUR							
Project Description 14443 / 3000								
East/West Street: AVENUE J				North/South Street: 27TH STREET EAST				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	26	336	1	1	354	6		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate (veh/h)	27	353	1	1	372	6		
Proportion of heavy vehicles, P _{HV}	0	--	--	0	--	--		
Median type	Undivided							
RT Channelized?			0			0		
Lanes	1	1	0	1	1	0		
Configuration	L		TR	L		TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	0	0	2	5	0	20		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate (veh/h)	0	0	2	5	0	21		
Proportion of heavy vehicles, P _{HV}	0	0	0	0	0	0		
Percent grade (%)	0			0				
Flared approach		N			N			
Storage		0			0			
RT Channelized?			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Control Delay, Queue Length, Level of Service								
Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
Volume, v (vph)	27	1		2			26	
Capacity, c _m (vph)	1192	1216		694			549	
v/c ratio	0.02	0.00		0.00			0.05	
Queue length (95%)	0.07	0.00		0.01			0.15	
Control Delay (s/veh)	8.1	8.0		10.2			11.9	
LOS	A	A		B			B	
Approach delay (s/veh)	--	--	10.2			11.9		
Approach LOS	--	--	B			B		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	C. CARDEN	Intersection	27TH ST. E. & AVE. J-8
Agency/Co.	WILLDAN	Jurisdiction	CITY OF LANCASTER
Date Performed	5/7/2004	Analysis Year	EXISTING CONDITIONS
Analysis Time Period	AM PEAK HOUR		

Project Description 14443 / 3000

East/West Street: AVENUE J-8

North/South Street: 27TH STREET EAST

Intersection Orientation: East-West

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	34	0	3
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	0	0	35	0	3
Proportion of heavy vehicles, P _{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	14	54	3	21	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	14	56	3	22	0
Proportion of heavy vehicles, P _{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L			TR	LT		
Volume, v (vph)		35			70	25		
Capacity, c _m (vph)		1636			1018	806		
v/c ratio		0.02			0.07	0.03		
Queue length (95%)		0.07			0.22	0.10		
Control Delay (s/veh)		7.2			8.8	9.6		
LOS		A			A	A		
Approach delay (s/veh)	--	--	8.8			9.6		
Approach LOS	--	--	A			A		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	C. CARDEN	Intersection	27TH ST. E. & AVE. J-8
Agency/Co.	WILLDAN	Jurisdiction	CITY OF LANCASTER
Date Performed	5/7/2004	Analysis Year	EXISTING CONDITIONS
Analysis Time Period	PM PEAK HOUR		

Project Description 14443 / 3000

East/West Street: AVENUE J-8

North/South Street: 27TH STREET EAST

Intersection Orientation: East-West

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	25	0	7
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	0	0	26	0	7
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	10	28	12	16	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	10	29	12	16	0
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration			TR		LT	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L			TR	LT		
Volume, v (vph)		26			39	28		
Capacity, c_m (vph)		1636			1007	851		
v/c ratio		0.02			0.04	0.03		
Queue length (95%)		0.05			0.12	0.10		
Control Delay (s/veh)		7.2			8.7	9.4		
LOS		A			A	A		
Approach delay (s/veh)	--	--	8.7			9.4		
Approach LOS	--	--	A			A		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	C. CARDEN	Intersection	27TH ST. E. & AVE. K
Agency/Co.	WILLDAN	Jurisdiction	CITY OF LANCASTER
Date Performed	5/7/2004	Analysis Year	EXISTING CONDITIONS
Analysis Time Period	AM PEAK HOUR		

Project Description	14443 / 3000		
East/West Street:	AVENUE K	North/South Street:	27TH STREET EAST
Intersection Orientation:	East-West	Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	26	244	0	0	422	11
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	27	256	0	0	444	11
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	3	0	61
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	0	0	3	0	64
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
Volume, v (vph)	27						67	
Capacity, c_m (vph)	1116						750	
v/c ratio	0.02						0.09	
Queue length (95%)	0.07						0.29	
Control Delay (s/veh)	8.3						10.3	
LOS	A						B	
Approach delay (s/veh)	--	--				10.3		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY

General Information				Site Information				
Analyst	C. CARDEN			Intersection	27TH ST. E. & AVE. K			
Agency/Co.	WILLDAN			Jurisdiction	CITY OF LANCASTER			
Date Performed	5/7/2004			Analysis Year	EXISTING CONDITIONS			
Analysis Time Period	PM PEAK HOUR							
Project Description 14443 / 3000								
East/West Street: AVENUE K				North/South Street: 27TH STREET EAST				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	69	418	0	0	357	8		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate (veh/h)	72	440	0	0	375	8		
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--		
Median type	Undivided							
RT Channelized?			0			0		
Lanes	1	2	0	0	2	0		
Configuration	L	T			T	TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	0	0	0	8	0	61		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate (veh/h)	0	0	0	8	0	64		
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0		
Percent grade (%)	0			0				
Flared approach		N			N			
Storage		0			0			
RT Channelized?			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Control Delay, Queue Length, Level of Service								
Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
Volume, v (vph)	72						72	
Capacity, c_m (vph)	1187						707	
v/c ratio	0.06						0.10	
Queue length (95%)	0.19						0.34	
Control Delay (s/veh)	8.2						10.7	
LOS	A						B	
Approach delay (s/veh)	--	--				10.7		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	C. CARDEN		Intersection	26TH ST. E. & AVE. J
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	5/7/2004		Analysis Year	EXISTING CONDITIONS
Analysis Time Period	AM PEAK HOUR			

Project Description 14443 / 3000

East/West Street: AVENUE J

North/South Street: 26TH STREET EAST

Intersection Orientation: East-West

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	0	248	13	15	391	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	261	13	15	411	0
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	0	1	1	1	1	0
Configuration		T	R	L	T	
Upstream Signal		0			0	
Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	25	0	16	0	0	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	26	0	16	0	0	0
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
Volume, v (vph)		15		42				
Capacity, c_m (vph)		1301		493				
v/c ratio		0.01		0.09				
Queue length (95%)		0.03		0.28				
Control Delay (s/veh)		7.8		13.0				
LOS		A		B				
Approach delay (s/veh)	--	--	13.0					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY

General Information				Site Information				
Analyst	C. CARDEN			Intersection	26TH ST. E. & AVE. J			
Agency/Co.	WILLDAN			Jurisdiction	CITY OF LANCASTER			
Date Performed	5/7/2004			Analysis Year	EXISTING CONDITIONS			
Analysis Time Period	PM PEAK HOUR							
Project Description 14443 / 3000								
East/West Street: AVENUE J				North/South Street: 26TH STREET EAST				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	0	347	29	26	403	0		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate (veh/h)	0	365	30	27	424	0		
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--		
Median type	Undivided							
RT Channelized?			0			0		
Lanes	0	1	1	1	1	0		
Configuration		T	R	L	T			
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	15	0	20	0	0	0		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate (veh/h)	15	0	21	0	0	0		
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0		
Percent grade (%)	0			0				
Flared approach		N			N			
Storage		0			0			
RT Channelized?			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Control Delay, Queue Length, Level of Service								
Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
Volume, v (vph)		27		36				
Capacity, c_m (vph)		1175		472				
v/c ratio		0.02		0.08				
Queue length (95%)		0.07		0.25				
Control Delay (s/veh)		8.1		13.3				
LOS		A		B				
Approach delay (s/veh)	--	--	13.3					
Approach LOS	--	--	B					

ALL-WAY STOP CONTROL ANALYSIS

General Information		Site Information	
Analyst	C. CARDEN	Intersection	30TH ST. E. & AVE. J
Agency/Co.	WILLDAN	Jurisdiction	CITY OF LANCASTER
Date Performed	5/7/2004	Analysis Year	EXISTING CONDITIONS
Analysis Time Period	AM PEAK HOUR		

Project ID 14443 / 3000

East/West Street: AVENUE J

North/South Street: 30TH STREET EAST

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	62	142	41	3	194	7
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	57	241	9	5	200	72
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.95		0.95		0.95		0.95	
Flow Rate	257		214		322		290	
% Heavy Vehicles								
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.3		0.0		0.2		0.0	
Prop. Right-Turns	0.2		0.0		0.0		0.3	
Prop. Heavy Vehicle								
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	6.24		6.24		6.24		6.24	

Departure Headway and Service Time

hd, initial value	3.20		3.20		3.20		3.20	
x, initial	0.23		0.19		0.29		0.26	
hd, final value	6.24		6.24		6.24		6.24	
x, final value	0.45		0.38		0.54		0.48	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	4.2		4.2		4.2		4.2	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	507		464		553		540	
Delay	14.16		13.22		16.00		14.37	
LOS	B		B		C		B	
Approach: Delay	14.16		13.22		16.00		14.37	
LOS	B		B		C		B	
Intersection Delay	14.57							
Intersection LOS	B							

ALL-WAY STOP CONTROL ANALYSIS

General Information			Site Information	
Analyst	C. CARDEN		Intersection	30TH ST. E. & AVE. J
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	5/7/2004		Analysis Year	EXISTING CONDITIONS
Analysis Time Period	PM PEAK HOUR			

Project ID 14443 / 3000

East/West Street: AVENUE J

North/South Street: 30TH STREET EAST

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound				
Movement	L	T	R	L	T	R		
Volume	34	177	81	8	218	7		
%Thrus Left Lane	50			50				
Approach	Northbound			Southbound				
Movement	L	T	R	L	T	R		
Volume	58	97	2	9	122	58		
%Thrus Left Lane	50			50				
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.95		0.95		0.95		0.95	
Flow Rate	306		244		165		198	
% Heavy Vehicles								
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1		0.0		0.4		0.0	
Prop. Right-Turns	0.3		0.0		0.0		0.3	
Prop. Heavy Vehicle								
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	5.24		5.24		5.24		5.24	

Departure Headway and Service Time

hd, initial value	3.20		3.20		3.20		3.20	
x, initial	0.27		0.22		0.15		0.18	
hd, final value	5.24		5.24		5.24		5.24	
x, final value	0.45		0.37		0.27		0.31	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	3.2		3.2		3.2		3.2	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	556		494		415		448	
Delay	12.39		11.64		10.98		10.98	
LOS	B		B		B		B	
Approach: Delay	12.39		11.64		10.98		10.98	
LOS	B		B		B		B	
Intersection Delay	11.63							
Intersection LOS	B							

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	C. GARDEN		Intersection	30TH ST. E. & AVE. J-4
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	5/7/2004		Analysis Year	EXISTING CONDITIONS
Analysis Time Period	AM PEAK HOUR			

Project Description 14443 / 3000

East/West Street: AVENUE J-4

North/South Street: 30TH STREET EAST

Intersection Orientation: North-South

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	2	331	0	0	245	26
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	2	348	0	0	257	27
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0	34	0	9
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	0	0	35	0	9
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (vph)	2						44	
C (m) (vph)	1290						495	
v/c	0.00						0.09	
95% queue length	0.00						0.29	
Control Delay	7.8						13.0	
LOS	A						B	
Approach Delay	--	--				13.0		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	C. CARDEN	Intersection	30TH ST. E. & AVE. J-4
Agency/Co.	WILLDAN	Jurisdiction	CITY OF LANCASTER
Date Performed	5/7/2004	Analysis Year	EXISTING CONDITIONS
Analysis Time Period	PM PEAK HOUR		
Project Description 14443 / 3000			
East/West Street: AVENUE J-4		North/South Street: 30TH STREET EAST	
Intersection Orientation: North-South		Study Period (hrs): 0.25	

Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	1	162	0	0	337	37
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	1	170	0	0	354	38
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0	21	0	22
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	0	0	22	0	23
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (vph)	1						45	
C (m) (vph)	1178						579	
v/c	0.00						0.08	
95% queue length	0.00						0.25	
Control Delay	8.1						11.7	
LOS	A						B	
Approach Delay	--	--				11.7		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	C. CARDEN		Intersection	30TH ST. E. & AVE. J-8
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	5/7/2004		Analysis Year	EXISTING CONDITIONS
Analysis Time Period	AM PEAK HOUR			

Project Description 14443 / 3000

East/West Street: AVENUE J-8

North/South Street: 30TH STREET EAST

Intersection Orientation: North-South

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	7	187	0	0	183	45
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	7	196	0	0	192	47
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0	95	0	12
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	0	0	100	0	12
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Delay, Queue Length and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (vph)	7					100		12
C (m) (vph)	1340					586		829
v/c	0.01					0.17		0.01
95% queue length	0.02					0.61		0.04
Control Delay	7.7					12.4		9.4
LOS	A					B		A
Approach Delay	--	--				12.1		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	C. CARDEN		Intersection	30TH ST. E. & AVE. J-8
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	5/7/2004		Analysis Year	EXISTING CONDITIONS
Analysis Time Period	PM PEAK HOUR			

Project Description	14443 / 3000			
East/West Street:	AVENUE J-8		North/South Street:	30TH STREET EAST
Intersection Orientation:	North-South		Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	12	146	0	0	163	52
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	12	153	0	0	171	54
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0	31	0	5
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	0	0	32	0	5
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (vph)	12					32		5
C (m) (vph)	1356					624		848
v/c	0.01					0.05		0.01
95% queue length	0.03					0.16		0.02
Control Delay	7.7					11.1		9.3
LOS	A					B		A
Approach Delay	--	--				10.8		
Approach LOS	--	--				B		

**Opening Day (Year 2006)
Without Project Conditions**

SHORT REPORT - SIGNALIZED

General Information				Site Information			
Analyst	C. CARDEN			Intersection	30TH ST. E. & AVE. K		
Agency or Co.	WILLDAN			Area Type	All other areas		
Date Performed	7/30/2004			Jurisdiction	CITY OF LANCASTER		
Time Period	AM PEAK HOUR			Analysis Year	OPEN DAY (2006) WITHOUT PROJ.		

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	1	0	1	1	1	1	1	1
Lane group	L	TR		L	TR		L	T	R	L	T	R
Volume (vph)	180	455	25	57	409	65	46	85	69	56	105	225
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival type	3	3		3	3		3	3	3	3	3	3
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0		0	0		0	0		0	0		0
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0	0	0	0	0
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 30.0	G =	G =	G =	G = 24.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25				Cycle Length C = 60.0				

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	189	505		60	499		48	89	73	59	111	237
Lane group cap.	327	1791		411	931		521	760	646	532	760	646
v/c ratio	0.58	0.28		0.15	0.54		0.09	0.12	0.11	0.11	0.15	0.37
Green ratio	0.50	0.50		0.50	0.50		0.40	0.40	0.40	0.40	0.40	0.40
Unif. delay d1	10.5	8.7		8.1	10.2		11.2	11.3	11.3	11.3	11.5	12.7
Delay factor k	0.17	0.11		0.11	0.14		0.11	0.11	0.11	0.11	0.11	0.11
Increm. delay d2	2.5	0.1		0.2	0.6		0.1	0.1	0.1	0.1	0.1	0.4
PF factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	13.1	8.8		8.3	10.9		11.3	11.4	11.4	11.4	11.6	13.0
Lane group LOS	B	A		A	B		B	B	B	B	B	B
Apprch. delay	10.0			10.6			11.4			12.4		
Approach LOS	A			B			B			B		
Intersec. delay	10.8			Intersection LOS						B		

SHORT REPORT - SIGNALIZED

General Information				Site Information			
Analyst	C. CARDEN			Intersection	30TH ST. E. & AVE. K		
Agency or Co.	WILLDAN			Area Type	All other areas		
Date Performed	7/30/2004			Jurisdiction	CITY OF LANCASTER		
Time Period	PM PEAK HOUR			Analysis Year	OPEN DAY (2006) WITHOUT PROJ.		

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	1	0	1	1	1	1	1	1
Lane group	L	TR		L	TR		L	T	R	L	T	R
Volume (vph)	234	541	78	56	546	50	89	155	65	75	125	194
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival type	3	3		3	3		3	3	3	3	3	3
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0		0	0		0	0		0	0		0
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0	0	0	0	0
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 30.0	G =	G =	G =	G = 24.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25				Cycle Length C = 60.0				

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	246	651		59	628		94	163	68	79	132	204
Lane group cap.	229	1771		333	938		511	760	646	485	760	646
v/c ratio	1.07	0.37		0.18	0.67		0.18	0.21	0.11	0.16	0.17	0.32
Green ratio	0.50	0.50		0.50	0.50		0.40	0.40	0.40	0.40	0.40	0.40
Unif. delay d1	15.0	9.2		8.2	11.3		11.7	11.8	11.3	11.6	11.6	12.4
Delay factor k	0.50	0.11		0.11	0.24		0.11	0.11	0.11	0.11	0.11	0.11
Increm. delay d2	80.6	0.1		0.3	1.9		0.2	0.1	0.1	0.2	0.1	0.3
PF factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	95.6	9.3		8.5	13.1		11.8	12.0	11.3	11.7	11.7	12.6
Lane group LOS	F	A		A	B		B	B	B	B	B	B
Apprch. delay	33.0			12.7			11.8			12.2		
Approach LOS	C			B			B			B		
Intersec. delay	20.3			Intersection LOS						C		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	C. CARDEN		Intersection	27TH ST. E. & AVE. J
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	7/30/2004		Analysis Year	OPEN DAY (2006) WITHOUT PROJ.
Analysis Time Period	AM PEAK HOUR			

Project Description 14443 / 3000

East/West Street: AVENUE J

North/South Street: 27TH STREET EAST

Intersection Orientation: East-West

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	19	640	3	2	778	8
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	20	673	3	2	818	8
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	4	0	3	6	0	46
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	4	0	3	6	0	48
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
Volume, v (vph)	20	2		7			54	
Capacity, c_m (vph)	813	925		122			280	
v/c ratio	0.02	0.00		0.06			0.19	
Queue length (95%)	0.08	0.01		0.18			0.70	
Control Delay (s/veh)	9.5	8.9		36.3			20.9	
LOS	A	A		E			C	
Approach delay (s/veh)	--	--	36.3			20.9		
Approach LOS	--	--	E			C		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	C. CARDEN		Intersection	27TH ST. E. & AVE. J
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	7/30/2004		Analysis Year	OPEN DAY (2006) WITHOUT PROJ.
Analysis Time Period	PM PEAK HOUR			

Project Description 14443 / 3000				
East/West Street: AVENUE J			North/South Street: 27TH STREET EAST	
Intersection Orientation: East-West			Study Period (hrs): 0.25	

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	43	818	1	1	804	6
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	45	861	1	1	846	6
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	2	5	0	36
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	0	2	5	0	37
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
Volume, v (vph)	45	1		2			42	
Capacity, c_m (vph)	795	789		358			225	
v/c ratio	0.06	0.00		0.01			0.19	
Queue length (95%)	0.18	0.00		0.02			0.67	
Control Delay (s/veh)	9.8	9.6		15.1			24.6	
LOS	A	A		C			C	
Approach delay (s/veh)	--	--		15.1			24.6	
Approach LOS	--	--		C			C	

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst **C. CARDEN**
 Agency/Co. **WILLDAN**
 Date Performed **7/30/2004**
 Analysis Time Period **AM PEAK HOUR**

Site Information

Intersection **27TH ST. E. & AVE. J**
 Jurisdiction **CITY OF LANCASTER**
 Analysis Year **OPEN DAY WITHOUT PROJ. W/IMP.**

Project Description **14443 / 3000**

East/West Street: **AVENUE J**

North/South Street: **27TH STREET EAST**

Intersection Orientation: **East-West**

Study Period (hrs): **0.25**

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	19	640	3	2	778	8
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	20	673	3	2	818	8
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	1	0	1	2	0
Configuration	L		TR	L	T	TR
Upstream Signal		0			0	
Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	4	0	3	6	0	46
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	4	0	3	6	0	48
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
Volume, v (vph)	20	2		7			54	
Capacity, c_m (vph)	813	925		201			342	
v/c ratio	0.02	0.00		0.03			0.16	
Queue length (95%)	0.08	0.01		0.11			0.55	
Control Delay (s/veh)	9.5	8.9		23.6			17.5	
LOS	A	A		C			C	
Approach delay (s/veh)	--	--	23.6			17.5		
Approach LOS	--	--	C			C		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	C. CARDEN		Intersection	27TH ST. E. & AVE. J
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	7/30/2004		Analysis Year	OPEN DAY WITHOUT PROJ. W/IMP.
Analysis Time Period	PM PEAK HOUR			

Project Description 14443 / 3000

East/West Street: AVENUE J

North/South Street: 27TH STREET EAST

Intersection Orientation: East-West

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	43	818	1	1	804	6
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	45	861	1	1	846	6
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	1	0	1	2	0
Configuration	L		TR	L	T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	2	5	0	36
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	0	2	5	0	37
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
Volume, v (vph)	45	1		2			42	
Capacity, c_m (vph)	795	789		302			250	
v/c ratio	0.06	0.00		0.01			0.17	
Queue length (95%)	0.18	0.00		0.02			0.59	
Control Delay (s/veh)	9.8	9.6		17.0			22.3	
LOS	A	A		C			C	
Approach delay (s/veh)	--	--	17.0			22.3		
Approach LOS	--	--	C			C		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	C. CARDEN		Intersection	27TH ST. E. & AVE. J-8
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	7/30/2004		Analysis Year	OPEN DAY (2006) WITHOUT PROJ.
Analysis Time Period	AM PEAK HOUR			

Project Description 14443 / 3000

East/West Street: AVENUE J-8

North/South Street: 27TH STREET EAST

Intersection Orientation: East-West

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	36	0	3
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	0	0	37	0	3
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R
Upstream Signal		0			0	
Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	15	57	3	22	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	15	60	3	23	0
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L			TR	LT		
Volume, v (vph)		37			75	26		
Capacity, c_m (vph)		1636			1017	800		
v/c ratio		0.02			0.07	0.03		
Queue length (95%)		0.07			0.24	0.10		
Control Delay (s/veh)		7.3			8.8	9.7		
LOS		A			A	A		
Approach delay (s/veh)	--	--	8.8			9.7		
Approach LOS	--	--	A			A		

TWO-WAY STOP CONTROL SUMMARY

General Information				Site Information				
Analyst	C. CARDEN	Intersection	27TH ST. E. & AVE. K					
Agency/Co.	WILLDAN	Jurisdiction	CITY OF LANCASTER					
Date Performed	7/30/2004	Analysis Year	OPEN DAY (2006) WITHOUT PROJ.					
Analysis Time Period	AM PEAK HOUR							
Project Description 14443 / 3000								
East/West Street: AVENUE K		North/South Street: 27TH STREET EAST						
Intersection Orientation: East-West		Study Period (hrs): 0.25						
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	30	661	0	0	856	12		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate (veh/h)	31	695	0	0	901	12		
Proportion of heavy vehicles, P _{HV}	0	--	--	0	--	--		
Median type	Undivided							
RT Channelized?			0			0		
Lanes	1	2	0	0	2	0		
Configuration	L	T			T	TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	0	0	0	3	0	69		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate (veh/h)	0	0	0	3	0	72		
Proportion of heavy vehicles, P _{HV}	0	0	0	0	0	0		
Percent grade (%)	0			0				
Flared approach		N			N			
Storage		0			0			
RT Channelized?			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Control Delay, Queue Length, Level of Service								
Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
Volume, v (vph)	31						75	
Capacity, c _m (vph)	755						501	
v/c ratio	0.04						0.15	
Queue length (95%)	0.13						0.52	
Control Delay (s/veh)	10.0						13.4	
LOS	A						B	
Approach delay (s/veh)	--	--					13.4	
Approach LOS	--	--					B	

TWO-WAY STOP CONTROL SUMMARY

General Information				Site Information			
Analyst	C. CARDEN	Intersection	27TH ST. E. & AVE. K				
Agency/Co.	WILLDAN	Jurisdiction	CITY OF LANCASTER				
Date Performed	7/30/2004	Analysis Year	OPEN DAY (2006) WITHOUT PROJ.				
Analysis Time Period	PM PEAK HOUR						
Project Description 14443 / 3000							
East/West Street: AVENUE K		North/South Street: 27TH STREET EAST					
Intersection Orientation: East-West		Study Period (hrs): 0.25					
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	89	928	0	0	810	8	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly Flow Rate (veh/h)	93	976	0	0	852	8	
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--	
Median type	Undivided						
RT Channelized?			0			0	
Lanes	1	2	0	0	2	0	
Configuration	L	T			T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	0	0	0	8	0	79	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly Flow Rate (veh/h)	0	0	0	8	0	83	
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0	
Percent grade (%)	0			0			
Flared approach		N			N		
Storage		0			0		
RT Channelized?			0			0	
Lanes	0	0	0	0	0	0	
Configuration					LR		
Control Delay, Queue Length, Level of Service							
Approach	EB	WB	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	L						LR
Volume, v (vph)	93						91
Capacity, c_m (vph)	790						403
v/c ratio	0.12						0.23
Queue length (95%)	0.40						0.86
Control Delay (s/veh)	10.2						16.5
LOS	B						C
Approach delay (s/veh)	--	--				16.5	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY

General Information				Site Information				
Analyst	C. CARDEN	Intersection	26TH ST. E. & AVE. J					
Agency/Co.	WILLDAN	Jurisdiction	CITY OF LANCASTER					
Date Performed	7/30/2004	Analysis Year	OPEN DAY (2006) WITHOUT PROJ.					
Analysis Time Period	AM PEAK HOUR							
Project Description 14443 / 3000								
East/West Street: AVENUE J		North/South Street: 26TH STREET EAST						
Intersection Orientation: East-West		Study Period (hrs): 0.25						
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	0	667	14	16	803	0		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate (veh/h)	0	702	14	16	845	0		
Proportion of heavy vehicles, P _{HV}	0	--	--	0	--	--		
Median type	Undivided							
RT Channelized?			0			0		
Lanes	0	1	1	1	1	0		
Configuration		T	R	L	T			
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	26	0	17	0	0	0		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate (veh/h)	27	0	17	0	0	0		
Proportion of heavy vehicles, P _{HV}	0	0	0	0	0	0		
Percent grade (%)	0			0				
Flared approach		N			N			
Storage		0			0			
RT Channelized?			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Control Delay, Queue Length, Level of Service								
Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
Volume, v (vph)		16		44				
Capacity, c _m (vph)		894		167				
v/c ratio		0.02		0.26				
Queue length (95%)		0.05		1.01				
Control Delay (s/veh)		9.1		34.1				
LOS		A		D				
Approach delay (s/veh)	--	--	34.1					
Approach LOS	--	--	D					

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	C. CARDEN	Intersection	26TH ST. E. & AVE. J	
Agency/Co.	WILLDAN	Jurisdiction	CITY OF LANCASTER	
Date Performed	7/30/2004	Analysis Year	OPEN DAY (2006) WITHOUT PROJ.	
Analysis Time Period	PM PEAK HOUR			

Project Description 14443 / 3000

East/West Street: AVENUE J

North/South Street: 26TH STREET EAST

Intersection Orientation: East-West

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	0	846	30	27	870	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	890	31	28	915	0
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	0	1	1	1	1	0
Configuration		T	R	L	T	
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	16	0	21	0	0	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	16	0	22	0	0	0
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
Volume, v (vph)		28		38				
Capacity, c_m (vph)		750		141				
v/c ratio		0.04		0.27				
Queue length (95%)		0.12		1.03				
Control Delay (s/veh)		10.0		39.7				
LOS		A		E				
Approach delay (s/veh)	--	--	39.7					
Approach LOS	--	--	E					

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst **C. CARDEN**
 Agency/Co. **WILLDAN**
 Date Performed **7/30/2004**
 Analysis Time Period **AM PEAK HOUR**

Site Information

Intersection **26TH ST. E. & AVE. J**
 Jurisdiction **CITY OF LANCASTER**
 Analysis Year **OPEN DAY WITHOUT PROJ. W/IMP.**

Project Description **14443 / 3000**

East/West Street: **AVENUE J**

North/South Street: **26TH STREET EAST**

Intersection Orientation: **East-West**

Study Period (hrs): **0.25**

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	0	667	14	16	803	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	702	14	16	845	0
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	0	1	1	1	2	0
Configuration		T	R	L	T	
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	26	0	17	0	0	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	27	0	17	0	0	0
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
Volume, v (vph)		16		44				
Capacity, c_m (vph)		894		236				
v/c ratio		0.02		0.19				
Queue length (95%)		0.05		0.67				
Control Delay (s/veh)		9.1		23.7				
LOS		A		C				
Approach delay (s/veh)	--	--	23.7					
Approach LOS	--	--	C					

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	C. CARDEN		Intersection	26TH ST. E. & AVE. J
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	7/30/2004		Analysis Year	OPEN DAY WITHOUT PROJ. W/IMP.
Analysis Time Period	PM PEAK HOUR			

Project Description 14443 / 3000

East/West Street: AVENUE J

North/South Street: 26TH STREET EAST

Intersection Orientation: East-West

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	0	846	30	27	870	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	890	31	28	915	0
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	0	1	1	1	2	0
Configuration		T	R	L	T	
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	16	0	21	0	0	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	16	0	22	0	0	0
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
Volume, v (vph)		28		38				
Capacity, c_m (vph)		750		189				
v/c ratio		0.04		0.20				
Queue length (95%)		0.12		0.73				
Control Delay (s/veh)		10.0		28.8				
LOS		A		D				
Approach delay (s/veh)	--	--	28.8					
Approach LOS	--	--	D					

ALL-WAY STOP CONTROL ANALYSIS

General Information			Site Information	
Analyst	C. CARDEN		Intersection	30TH ST. E. & AVE. J
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	7/30/2004		Analysis Year	OPEN DAY (2006) WITHOUT PROJ.
Analysis Time Period	AM PEAK HOUR			

Project ID 14443 / 3000

East/West Street: AVENUE J

North/South Street: 30TH STREET EAST

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
	L	T	R	L	T	R
Movement						
Volume	85	174	403	4	232	16
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
	L	T	R	L	T	R
Movement						
Volume	370	335	12	9	342	114
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.95		0.95		0.95		0.95	
Flow Rate	696		264		753		489	
% Heavy Vehicles								
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1		0.0		0.5		0.0	
Prop. Right-Turns	0.6		0.1		0.0		0.2	
Prop. Heavy Vehicle								
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	8.70		8.70		8.70		8.70	

Departure Headway and Service Time

hd, initial value	3.20		3.20		3.20		3.20	
x, initial	0.62		0.23		0.67		0.43	
hd, final value	8.70		8.70		8.70		8.70	
x, final value	1.68		0.72		1.91		1.21	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	6.7		6.7		6.7		6.7	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	696		369		753		489	
Delay	338.37		34.02		441.77		142.97	
LOS	F		D		F		F	
Approach: Delay	338.37		34.02		441.77		142.97	
LOS	F		D		F		F	
Intersection Delay	293.85							
Intersection LOS	F							

ALL-WAY STOP CONTROL ANALYSIS

General Information		Site Information	
Analyst	C. GARDEN	Intersection	30TH ST. E. & AVE. J
Agency/Co.	WILLDAN	Jurisdiction	CITY OF LANCASTER
Date Performed	7/30/2004	Analysis Year	OPEN DAY (2006) WITHOUT PROJ.
Analysis Time Period	PM PEAK HOUR		

Project ID 14443 / 3000

East/West Street: AVENUE J

North/South Street: 30TH STREET EAST

Volume Adjustments and Site Characteristics

Approach		Eastbound			Westbound			
Movement	L	T	R	L	T	R		
Volume	82	233	446	12	274	13		
%Thrus Left Lane	50			50				
Approach		Northbound			Southbound			
Movement	L	T	R	L	T	R		
Volume	415	236	4	19	235	93		
%Thrus Left Lane	50			50				
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.95		0.95		0.95		0.95	
Flow Rate	800		313		688		364	
% Heavy Vehicles								
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1		0.0		0.6		0.1	
Prop. Right-Turns	0.6		0.0		0.0		0.3	
Prop. Heavy Vehicle								
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	8.86		8.86		8.86		8.86	

Departure Headway and Service Time

hd, initial value	3.20		3.20		3.20		3.20	
x, initial	0.71		0.28		0.61		0.32	
hd, final value	8.86		8.86		8.86		8.86	
x, final value	1.97		0.84		1.78		0.93	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	6.9		6.9		6.9		6.9	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	800		370		688		389	
Delay	464.72		46.21		384.92		60.87	
LOS	F		E		F		F	
Approach: Delay	464.72		46.21		384.92		60.87	
LOS	F		E		F		F	
Intersection Delay	310.96							
Intersection LOS	F							

SHORT REPORT - *SIGNALIZED*

General Information

Analyst **C. CARDEN**
 Agency or Co. **WILLDAN**
 Date Performed **7/30/2004**
 Time Period **AM PEAK HOUR**

Site Information

Intersection **30TH ST. EAST & AVE. J**
 Area Type **All other areas**
 Jurisdiction **CITY OF LANCASTER**
 Analysis Year **OPEN DAY WITHOUT PROJ. W/IMP.**

Volume and Timing Input

			EB			WB			NB			SB		
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes			0	1	1	0	1	0	1	1	0	0	1	0
Lane group				LT	R		LTR		L	TR			LTR	
Volume (vph)			85	174	403	4	232	16	370	335	12	9	342	114
% Heavy veh			0	0	0	0	0	0	0	0	0	0	0	0
PHF			0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)			A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time				2.0	2.0		2.0		2.0	2.0			2.0	
Ext. eff. green				2.0	2.0		2.0		2.0	2.0			2.0	
Arrival type				3	3		3		3	3			3	
Unit Extension				3.0	3.0		3.0		3.0	3.0			3.0	
Ped/Bike/RTOR Volume			0		0	0		0	0		0	0		0
Lane Width				12.0	12.0		12.0		12.0	12.0			12.0	
Parking/Grade/Parking			N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr														
Bus stops/hr				0	0		0		0	0			0	
Unit Extension				3.0	3.0		3.0		3.0	3.0			3.0	
Phasing	EW Perm	02	03		04		NS Perm		06		07		08	
Timing	G = 21.0	G =	G =		G =		G = 33.0		G =		G =		G =	
	Y = 3	Y =	Y =		Y =		Y = 3		Y =		Y =		Y =	
Duration of Analysis (hrs) = 0.25									Cycle Length C = 60.0					

Lane Group Capacity, Control Delay, and LOS Determination

	EB		WB		NB			SB				
Adj. flow rate		272	424		265		389	366			489	
Lane group cap.		560	565		657		457	1040			1005	
v/c ratio		0.49	0.75		0.40		0.85	0.35			0.49	
Green ratio		0.35	0.35		0.35		0.55	0.55			0.55	
Unif. delay d1		15.3	17.2		14.8		11.4	7.5			8.3	
Delay factor k		0.11	0.31		0.11		0.38	0.11			0.11	
Increm. delay d2		0.7	5.6		0.4		14.3	0.2			0.4	
PF factor		1.000	1.000		1.000		1.000	1.000			1.000	
Control delay		15.9	22.8		15.2		25.7	7.7			8.7	
Lane group LOS		B	C		B		C	A			A	
Apprch. delay	20.1			15.2			17.0			8.7		
Approach LOS	C			B			B			A		
Intersec. delay	15.9			Intersection LOS						B		

SHORT REPORT - SIGNALIZED

General Information				Site Information			
Analyst	C. CARDEN			Intersection	30TH ST. EAST & AVE. J		
Agency or Co.	WILLDAN			Area Type	All other areas		
Date Performed	7/30/2004			Jurisdiction	CITY OF LANCASTER		
Time Period	PM PEAK HOUR			Analysis Year	OPEN DAY WITHOUT PROJ. W/IMP.		

Volume and Timing Input														
			EB			WB			NB			SB		
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes			0	1	1	0	1	0	1	1	0	0	1	0
Lane group				LT	R		LTR		L	TR			LTR	
Volume (vph)			82	233	446	12	274	13	415	236	4	19	235	93
% Heavy veh			0	0	0	0	0	0	0	0	0	0	0	0
PHF			0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)			A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time				2.0	2.0		2.0		2.0	2.0			2.0	
Ext. eff. green				2.0	2.0		2.0		2.0	2.0			2.0	
Arrival type				3	3		3		3	3			3	
Unit Extension				3.0	3.0		3.0		3.0	3.0			3.0	
Ped/Bike/RTOR Volume			0		0	0		0	0		0	0		0
Lane Width				12.0	12.0		12.0		12.0	12.0			12.0	
Parking/Grade/Parking			N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr														
Bus stops/hr				0	0		0		0	0			0	
Unit Extension				3.0	3.0		3.0		3.0	3.0			3.0	
Phasing	EW Perm	02	03		04		NS Perm		06		07		08	
Timing	G = 27.0	G =	G =		G =		G = 27.0		G =		G =		G =	
	Y = 3	Y =	Y =		Y =		Y = 3		Y =		Y =		Y =	
Duration of Analysis (hrs) = 0.25										Cycle Length C = 60.0				

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
Adj. flow rate		331	469		315		437	252			365	
Lane group cap.		729	727		837		406	853			809	
v/c ratio		0.45	0.65		0.38		1.08	0.30			0.45	
Green ratio		0.45	0.45		0.45		0.45	0.45			0.45	
Unif. delay d1		11.4	12.8		10.9		16.5	10.5			11.4	
Delay factor k		0.11	0.22		0.11		0.50	0.11			0.11	
Increm. delay d2		0.5	2.0		0.3		66.6	0.2			0.4	
PF factor		1.000	1.000		1.000		1.000	1.000			1.000	
Control delay		11.9	14.8		11.2		83.1	10.7			11.8	
Lane group LOS		B	B		B		F	B			B	
Apprch. delay	13.6			11.2			56.6			11.8		
Approach LOS	B			B			E			B		
Intersec. delay	26.6			Intersection LOS						C		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	C. CARDEN		Intersection	30TH ST. E. & AVE. J-4
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	7/30/2004		Analysis Year	OPEN DAY (2006) WITHOUT PROJ.
Analysis Time Period	AM PEAK HOUR			

Project Description 14443 / 3000				
East/West Street: AVENUE J-4			North/South Street: 30TH STREET EAST	
Intersection Orientation: North-South			Study Period (hrs): 0.25	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	2	732	0	0	807	27
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	2	770	0	0	849	28
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0	36	0	9
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	0	0	37	0	9
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (vph)	2						46	
C (m) (vph)	779						129	
v/c	0.00						0.36	
95% queue length	0.01						1.46	
Control Delay	9.6						47.6	
LOS	A						E	
Approach Delay	--	--				47.6		
Approach LOS	--	--				E		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst **C. CARDEN**
 Agency/Co. **WILLDAN**
 Date Performed **7/30/2004**
 Analysis Time Period **PM PEAK HOUR**

Site Information

Intersection **30TH ST. E. & AVE. J-4**
 Jurisdiction **CITY OF LANCASTER**
 Analysis Year **OPEN DAY (2006) WITHOUT PROJ.**

Project Description **14443 / 3000**

East/West Street: **AVENUE J-4**

North/South Street: **30TH STREET EAST**

Intersection Orientation: **North-South**

Study Period (hrs): **0.25**

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	1	716	0	0	831	39
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	1	753	0	0	874	41
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0	22	0	23
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	0	0	23	0	24
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (vph)	1						47	
C (m) (vph)	754						168	
v/c	0.00						0.28	
95% queue length	0.00						1.09	
Control Delay	9.8						34.5	
LOS	A						D	
Approach Delay	--	--				34.5		
Approach LOS	--	--				D		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	C. CARDEN		Intersection	30TH ST. E. & AVE. J-4
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	7/30/2004		Analysis Year	OPEN DAY WITHOUT PROJ. W/IMP.
Analysis Time Period	AM PEAK HOUR			

Project Description 14443 / 3000

East/West Street: AVENUE J-4

North/South Street: 30TH STREET EAST

Intersection Orientation: North-South

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	2	732	0	0	807	27
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	2	770	0	0	849	28
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	2	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0	36	0	9
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	0	0	37	0	9
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (vph)	2						46	
C (m) (vph)	779						183	
v/c	0.00						0.25	
95% queue length	0.01						0.95	
Control Delay	9.6						31.2	
LOS	A						D	
Approach Delay	--	--				31.2		
Approach LOS	--	--				D		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst **C. CARDEN**
 Agency/Co. **WILLDAN**
 Date Performed **7/30/2004**
 Analysis Time Period **PM PEAK HOUR**

Site Information

Intersection **30TH ST. E. & AVE. J-4**
 Jurisdiction **CITY OF LANCASTER**
 Analysis Year **OPEN DAY WITHOUT PROJ. W/IMP.**

Project Description **14443 / 3000**

East/West Street: **AVENUE J-4**

North/South Street: **30TH STREET EAST**

Intersection Orientation: **North-South**

Study Period (hrs): **0.25**

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	1	716	0	0	831	39
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	1	753	0	0	874	41
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	2	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0	22	0	23
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	0	0	23	0	24
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (vph)	1						47	
C (m) (vph)	754						228	
v/c	0.00						0.21	
95% queue length	0.00						0.75	
Control Delay	9.8						24.8	
LOS	A						C	
Approach Delay	--	--				24.8		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	C. CARDEN		Intersection	30TH ST. E. & AVE. J-8
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	7/30/2004		Analysis Year	OPEN DAY WITHOUT PROJ. W/IMP.
Analysis Time Period	AM PEAK HOUR			

Project Description 14443 / 3000

East/West Street: AVENUE J-8

North/South Street: 30TH STREET EAST

Intersection Orientation: North-South

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	7	265	70	365	377	47
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	7	278	73	384	396	49
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	65	0	315	100	0	13
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	68	0	331	105	0	13
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	L		TR	L		TR
v (vph)	7	384	68		331	105		13
C (m) (vph)	1126	1219	72		731	31		638
v/c	0.01	0.32	0.94		0.45	3.39		0.02
95% queue length	0.02	1.36	4.81		2.37	12.42		0.06
Control Delay	8.2	9.3	188.8		13.9	1340		10.8
LOS	A	A	F		B	F		B
Approach Delay	--	--	43.7			1194		
Approach LOS	--	--	E			F		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	C. CARDEN		Intersection	30TH ST. E. & AVE. J-8
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	7/30/2004		Analysis Year	OPEN DAY WITHOUT PROJ. W/IMP.
Analysis Time Period	PM PEAK HOUR			

Project Description 14443 / 3000

East/West Street: AVENUE J-8

North/South Street: 30TH STREET EAST

Intersection Orientation: North-South

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	13	334	60	320	328	55
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	13	351	63	336	345	57
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	70	0	365	33	0	5
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	73	0	384	34	0	5
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	L		TR	L		TR
v (vph)	13	336	73		384	34		5
C (m) (vph)	1168	1156	83		670	26		677
v/c	0.01	0.29	0.88		0.57	1.31		0.01
95% queue length	0.03	1.21	4.64		3.65	4.11		0.02
Control Delay	8.1	9.4	155.1		17.3	506.4		10.4
LOS	A	A	F		C	F		B
Approach Delay	--	--	39.3			442.8		
Approach LOS	--	--	E			F		

SHORT REPORT - SIGNALIZED

General Information

Analyst C. CARDEN
Agency or Co. WILLDAN
Date Performed 7/30/2004
Time Period AM PEAK HOUR

Site Information

Intersection 30TH ST. EAST & AVE. J-8
Area Type All other areas
Jurisdiction CITY OF LANCASTER
Analysis Year OPEN DAY WITHOUT PROJ. W/ IMP.

Volume and Timing Input

			EB			WB			NB			SB		
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes			1	1	0	1	1	0	1	1	0	1	1	0
Lane group			L	TR		L	TR		L	TR		L	TR	
Volume (vph)			100	0	13	65	0	315	7	265	70	365	377	47
% Heavy veh			0	0	0	0	0	0	0	0	0	0	0	0
PHF			0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)			A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time			2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green			2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type			3	3		3	3		3	3		3	3	
Unit Extension			3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume			0		0	0		0	0		0	0		0
Lane Width			12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking			N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr														
Bus stops/hr			0	0		0	0		0	0		0	0	
Unit Extension			3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Phasing	EW Perm	02	03		04		Excl. Left		Thru & RT		07		08	
Timing	G = 18.0	G =	G =		G =		G = 15.0		G = 18.0		G =		G =	
	Y = 3	Y =	Y =		Y =		Y = 3		Y = 3		Y =		Y =	
Duration of Analysis (hrs) = 0.25									Cycle Length C = 60.0					

Lane Group Capacity, Control Delay, and LOS Determinator

	EB			WB			NB			SB		
Adj. flow rate	105	14		68	332		7	353		384	446	
Lane group cap.	204	485		427	485		451	552		451	561	
v/c ratio	0.51	0.03		0.16	0.68		0.02	0.64		0.85	0.80	
Green ratio	0.30	0.30		0.30	0.30		0.25	0.30		0.25	0.30	
Unif. delay d1	17.4	14.8		15.4	18.5		16.9	18.2		21.4	19.3	
Delay factor k	0.12	0.11		0.11	0.25		0.11	0.22		0.38	0.34	
Increm. delay d2	2.3	0.0		0.2	4.0		0.0	2.5		14.4	7.8	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	19.6	14.9		15.6	22.5		17.0	20.7		35.9	27.1	
Lane group LOS	B	B		B	C		B	C		D	C	
Apprch. delay	19.1			21.3			20.6			31.2		
Approach LOS	B			C			C			C		
Intersec. delay	25.8			Intersection LOS						C		

SHORT REPORT - SIGNALIZED

General Information

Analyst **C. CARDEN**
 Agency or Co. **WILLDAN**
 Date Performed **7/30/2004**
 Time Period **PM PEAK HOUR**

Site Information

Intersection **30TH ST. EAST & AVE. J-8**
 Area Type **All other areas**
 Jurisdiction **CITY OF LANCASTER**
 Analysis Year **OPEN DAY WITHOUT PROJ. W/ IMP.**

Volume and Timing Input

			EB			WB			NB			SB		
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes			1	1	0	1	1	0	1	1	0	1	1	0
Lane group			L	TR		L	TR		L	TR		L	TR	
Volume (vph)			33	0	5	70	0	365	13	334	60	320	328	55
% Heavy veh			0	0	0	0	0	0	0	0	0	0	0	0
PHF			0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)			A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time			2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green			2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type			3	3		3	3		3	3		3	3	
Unit Extension			3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume			0		0	0		0	0		0		0	
Lane Width			12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking			N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr														
Bus stops/hr			0	0		0	0		0	0		0	0	
Unit Extension			3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Phasing	EW Perm	02	03		04		Excl. Left		Thru & RT		07		08	
Timing	G = 18.0	G =	G =		G =		G = 15.0		G = 18.0		G =		G =	
	Y = 3	Y =	Y =		Y =		Y = 3		Y = 3		Y =		Y =	
Duration of Analysis (hrs) = 0.25									Cycle Length C = 60.0					

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	35	5		74	384		14	415		337	403	
Lane group cap.	163	485		430	485		451	557		451	558	
v/c ratio	0.21	0.01		0.17	0.79		0.03	0.75		0.75	0.72	
Green ratio	0.30	0.30		0.30	0.30		0.25	0.30		0.25	0.30	
Unif. delay d1	15.7	14.7		15.5	19.3		17.0	18.9		20.8	18.8	
Delay factor k	0.11	0.11		0.11	0.34		0.11	0.30		0.30	0.28	
Increm. delay d2	0.7	0.0		0.2	8.7		0.0	5.4		6.7	4.6	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	16.4	14.8		15.7	28.0		17.0	24.4		27.5	23.4	
Lane group LOS	B	B		B	C		B	C		C	C	
Apprch. delay	16.2			26.0			24.1			25.2		
Approach LOS	B			C			C			C		
Intersec. delay	24.9			Intersection LOS						C		

**Opening Day (Year 2006)
With Project Conditions**

SHORT REPORT - SIGNALIZED

General Information				Site Information			
Analyst	C. CARDEN			Intersection	30TH ST. E. & AVE. K		
Agency or Co.	WILLDAN			Area Type	All other areas		
Date Performed	8/2/2004			Jurisdiction	CITY OF LANCASTER		
Time Period	AM PEAK HOUR			Analysis Year	OPEN DAY (2006) WITH PROJECT		

Volume and Timing Input														
			EB			WB			NB			SB		
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes			1	2	0	1	1	0	1	1	1	1	1	1
Lane group			L	TR		L	TR		L	T	R	L	T	R
Volume (vph)			180	455	25	57	409	80	46	120	69	71	140	225
% Heavy veh			0	0	0	0	0	0	0	0	0	0	0	0
PHF			0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)			A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time			2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green			2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival type			3	3		3	3		3	3	3	3	3	3
Unit Extension			3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume			0		0	0		0	0		0	0		0
Lane Width			12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking			N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr														
Bus stops/hr			0	0		0	0		0	0	0	0	0	0
Unit Extension			3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Phasing	EW Perm	02	03		04		NS Perm		06		07		08	
Timing	G = 30.0	G =	G =		G =		G = 24.0		G =		G =		G =	
	Y = 3	Y =	Y =		Y =		Y = 3		Y =		Y =		Y =	
Duration of Analysis (hrs) = 0.25									Cycle Length C = 60.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
Adj. flow rate	189	505		60	515		48	126	73	75	147	237
Lane group cap.	315	1791		411	927		500	760	646	514	760	646
v/c ratio	0.60	0.28		0.15	0.56		0.10	0.17	0.11	0.15	0.19	0.37
Green ratio	0.50	0.50		0.50	0.50		0.40	0.40	0.40	0.40	0.40	0.40
Unif. delay d1	10.7	8.7		8.1	10.4		11.2	11.6	11.3	11.5	11.7	12.7
Delay factor k	0.19	0.11		0.11	0.15		0.11	0.11	0.11	0.11	0.11	0.11
Increm. delay d2	3.2	0.1		0.2	0.7		0.1	0.1	0.1	0.1	0.1	0.4
PF factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	13.9	8.8		8.3	11.1		11.3	11.7	11.4	11.6	11.8	13.0
Lane group LOS	B	A		A	B		B	B	B	B	B	B
Apprch. delay	10.2			10.8			11.5			12.4		
Approach LOS	B			B			B			B		
Intersec. delay	11.1			Intersection LOS						B		

SHORT REPORT - SIGNALIZED

General Information				Site Information			
Analyst	C. CARDEN			Intersection	30TH ST. E. & AVE. K		
Agency or Co.	WILLDAN			Area Type	All other areas		
Date Performed	8/2/2004			Jurisdiction	CITY OF LANCASTER		
Time Period	PM PEAK HOUR			Analysis Year	OPEN DAY (2006) WITH PROJECT		

Volume and Timing Input														
			EB			WB			NB			SB		
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes			1	2	0	1	1	0	1	1	1	1	1	1
Lane group			L	TR		L	TR		L	T	R	L	T	R
Volume (vph)			234	541	78	56	546	65	89	190	65	90	160	194
% Heavy veh			0	0	0	0	0	0	0	0	0	0	0	0
PHF			0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)			A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time			2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green			2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival type			3	3		3	3		3	3	3	3	3	3
Unit Extension			3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume			0		0	0		0	0		0	0		0
Lane Width			12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking			N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr														
Bus stops/hr			0	0		0	0		0	0	0	0	0	0
Unit Extension			3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Phasing	EW Perm	02	03		04		NS Perm		06		07		08	
Timing	G = 30.0	G =	G =		G =		G = 24.0		G =		G =		G =	
	Y = 3	Y =	Y =		Y =		Y = 3		Y =		Y =		Y =	
Duration of Analysis (hrs) = 0.25									Cycle Length C = 60.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
Adj. flow rate	246	651		59	643		94	200	68	95	168	204
Lane group cap.	218	1771		333	935		480	760	646	450	760	646
v/c ratio	1.13	0.37		0.18	0.69		0.20	0.26	0.11	0.21	0.22	0.32
Green ratio	0.50	0.50		0.50	0.50		0.40	0.40	0.40	0.40	0.40	0.40
Unif. delay d1	15.0	9.2		8.2	11.4		11.7	12.1	11.3	11.8	11.8	12.4
Delay factor k	0.50	0.11		0.11	0.26		0.11	0.11	0.11	0.11	0.11	0.11
Increm. delay d2	99.8	0.1		0.3	2.1		0.2	0.2	0.1	0.2	0.1	0.3
PF factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	114.8	9.3		8.5	13.6		11.9	12.3	11.3	12.0	12.0	12.6
Lane group LOS	F	A		A	B		B	B	B	B	B	B
Apprch. delay	38.2			13.1			12.0			12.3		
Approach LOS	D			B			B			B		
Intersec. delay	22.1			Intersection LOS						C		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	C. CARDEN		Intersection	27TH ST. E. & AVE. J
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	8/2/2004		Analysis Year	OPEN DAY (2006) WITH PROJECT
Analysis Time Period	AM PEAK HOUR			

Project Description 14443 / 3000	
East/West Street: AVENUE J	North/South Street: 27TH STREET EAST
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	19	640	3	2	778	8
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	20	673	3	2	818	8
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	1	0	1	2	0
Configuration	L		TR	L	T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	4	0	3	6	0	46
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	4	0	3	6	0	48
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
Volume, v (vph)	20	2		7			54	
Capacity, c_m (vph)	813	925		201			342	
v/c ratio	0.02	0.00		0.03			0.16	
Queue length (95%)	0.08	0.01		0.11			0.55	
Control Delay (s/veh)	9.5	8.9		23.6			17.5	
LOS	A	A		C			C	
Approach delay (s/veh)	--	--		23.6			17.5	
Approach LOS	--	--		C			C	

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst **C. CARDEN**
 Agency/Co. **WILLDAN**
 Date Performed **8/2/2004**
 Analysis Time Period **PM PEAK HOUR**

Site Information

Intersection **27TH ST. E. & AVE. J**
 Jurisdiction **CITY OF LANCASTER**
 Analysis Year **OPEN DAY (2006) WITH PROJECT**

Project Description **14443 / 3000**

East/West Street: **AVENUE J**

North/South Street: **27TH STREET EAST**

Intersection Orientation: **East-West**

Study Period (hrs): **0.25**

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	43	818	1	1	804	6
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	45	861	1	1	846	6
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	1	0	1	2	0
Configuration	L		TR	L	T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	2	5	0	36
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	0	2	5	0	37
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
Volume, v (vph)	45	1		2			42	
Capacity, c_m (vph)	795	789		302			250	
v/c ratio	0.06	0.00		0.01			0.17	
Queue length (95%)	0.18	0.00		0.02			0.59	
Control Delay (s/veh)	9.8	9.6		17.0			22.3	
LOS	A	A		C			C	
Approach delay (s/veh)	--	--		17.0			22.3	
Approach LOS	--	--		C			C	

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst **C. CARDEN**
 Agency/Co. **WILLDAN**
 Date Performed **8/2/2004**
 Analysis Time Period **AM PEAK HOUR**

Site Information

Intersection **27TH ST. EAST & AVE. J-4**
 Jurisdiction **CITY OF LANCASTER**
 Analysis Year **OPEN DAY (2006) WITH PROJECT**

Project ID **14443 / 3000**

East/West Street: **AVENUE J-4**

North/South Street: **27TH STREET EAST**

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	0	35	0	16	35	0
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	0	0	14	0	0	0
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	TR		LT		LR			
PHF	0.95		0.95		0.95			
Flow Rate	36		52		14			
% Heavy Vehicles								
No. Lanes	1		1		1		0	
Geometry Group	1		1		1			
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.0		0.3		0.0			
Prop. Right-Turns	0.0		0.0		1.0			
Prop. Heavy Vehicle								
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2		
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6		
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7		
hadj, computed	3.97		3.97		3.97			

Departure Headway and Service Time

hd, initial value	3.20		3.20		3.20			
x, initial	0.03		0.05		0.01			
hd, final value	3.97		3.97		3.97			
x, final value	0.04		0.06		0.01			
Move-up time, m	2.0		2.0		2.0			
Service Time	2.0		2.0		2.0		2.0	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	286		302		264			
Delay	7.14		7.27		6.53			
LOS	A		A		A			
Approach: Delay	7.14		7.27		6.53			
LOS	A		A		A			
Intersection Delay	7.12							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information		Site Information	
Analyst	C. CARDEN	Intersection	27TH ST. EAST & AVE. J-4
Agency/Co.	WILLDAN	Jurisdiction	CITY OF LANCASTER
Date Performed	8/2/2004	Analysis Year	OPEN DAY (2006) WITH PROJECT
Analysis Time Period	PM PEAK HOUR		

Project ID 14443 / 3000

East/West Street: AVENUE J-4

North/South Street: 27TH STREET EAST

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
	L	T	R	L	T	R
Movement						
Volume	0	35	0	14	35	0
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
	L	T	R	L	T	R
Movement						
Volume	0	0	17	0	0	0
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	TR		LT		LR			
PHF	0.95		0.95		0.95			
Flow Rate	36		50		17			
% Heavy Vehicles								
No. Lanes	1		1		1		0	
Geometry Group	1		1		1			
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.0		0.3		0.0			
Prop. Right-Turns	0.0		0.0		1.0			
Prop. Heavy Vehicle								
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2		
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6		
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7		
hadj, computed	3.98		3.98		3.98			

Departure Headway and Service Time

hd, initial value	3.20		3.20		3.20			
x, initial	0.03		0.04		0.02			
hd, final value	3.98		3.98		3.98			
x, final value	0.04		0.06		0.02			
Move-up time, m	2.0		2.0		2.0			
Service Time	2.0		2.0		2.0		2.0	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	286		300		267			
Delay	7.14		7.26		6.54			
LOS	A		A		A			
Approach: Delay	7.14		7.26		6.54			
LOS	A		A		A			
Intersection Delay	7.10							
Intersection LOS	A							

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	C. CARDEN	Intersection	27TH ST. E. & AVE. J-8
Agency/Co.	WILLDAN	Jurisdiction	CITY OF LANCASTER
Date Performed	8/2/2004	Analysis Year	OPEN DAY (2006) WITH PROJECT
Analysis Time Period	AM PEAK HOUR		

Project Description 14443 / 3000

East/West Street: AVENUE J-8

North/South Street: 27TH STREET EAST

Intersection Orientation: East-West

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	36	0	53
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	0	0	37	0	55
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	135	57	53	137	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	142	60	55	144	0
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L			TR	LT		
Volume, v (vph)		37			202	199		
Capacity, c_m (vph)		1636			825	745		
v/c ratio		0.02			0.24	0.27		
Queue length (95%)		0.07			0.96	1.08		
Control Delay (s/veh)		7.3			10.8	11.6		
LOS		A			B	B		
Approach delay (s/veh)	--	--	10.8			11.6		
Approach LOS	--	--	B			B		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	C. CARDEN	Intersection	27TH ST. E. & AVE. J-8	
Agency/Co.	WILLDAN	Jurisdiction	CITY OF LANCASTER	
Date Performed	8/2/2004	Analysis Year	OPEN DAY (2006) WITH PROJECT	
Analysis Time Period	PM PEAK HOUR			

Project Description 14443 / 3000

East/West Street: AVENUE J-8

North/South Street: 27TH STREET EAST

Intersection Orientation: East-West

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	26	0	57
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	0	0	27	0	60
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	126	29	63	137	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	132	30	66	144	0
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L			TR	LT		
Volume, v (vph)		27			162	210		
Capacity, c_m (vph)		1636			812	783		
v/c ratio		0.02			0.20	0.27		
Queue length (95%)		0.05			0.74	1.08		
Control Delay (s/veh)		7.2			10.5	11.3		
LOS		A			B	B		
Approach delay (s/veh)	--	--	10.5			11.3		
Approach LOS	--	--	B			B		

ALL-WAY STOP CONTROL ANALYSIS

General Information			Site Information	
Analyst	C. CARDEN		Intersection	27TH ST. E. & AVE. J-8
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	8/3/2004		Analysis Year	OPEN DAY WITH PROJECT-ALL STOP
Analysis Time Period	AM PEAK HOUR			

Project ID 14443 / 3000

East/West Street: AVENUE J-8

North/South Street:

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
	L	T	R	L	T	R
Movement						
Volume	0	0	0	36	0	53
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
	L	T	R	L	T	R
Movement						
Volume	0	135	57	53	137	0
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration			L	R	TR		LT	
PHF			0.95	0.95	0.95		0.95	
Flow Rate			37	55	202		199	
% Heavy Vehicles								
No. Lanes	0		2		1		1	
Geometry Group			1		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns			1.0	0.0	0.0		0.3	
Prop. Right-Turns			0.0	1.0	0.3		0.0	
Prop. Heavy Vehicle								
hLT-adj			0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj			-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj			1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed			0.00	0.00	0.00		0.00	

Departure Headway and Service Time

hd, initial value			3.20	3.20	3.20		3.20	
x, initial			0.03	0.05	0.18		0.18	
hd, final value			0.00	0.00	0.00		0.00	
x, final value			0.05	0.06	0.23		0.24	
Move-up time, m			2.0		2.0		2.0	
Service Time								

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity			287	305	452		449	
Delay			8.24	7.46	8.40		8.76	
LOS			A	A	A		A	
Approach: Delay			7.77		8.40		8.76	
LOS			A		A		A	
Intersection Delay	8.43							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information			Site Information	
Analyst	C. CARDEN	Intersection	27TH ST. E. & AVE. J-8	
Agency/Co.	WILLDAN	Jurisdiction	CITY OF LANCASTER	
Date Performed	8/3/2004	Analysis Year	OPEN DAY WITH PROJECT-ALL STOP	
Analysis Time Period	PM PEAK HOUR			

Project ID 14443 / 3000

East/West Street: AVENUE J-8

North/South Street:

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
	L	T	R	L	T	R
Movement						
Volume	0	0	0	26	0	57
%Thrus Left Lane	50			50		
Approach	Northbound			Southbound		
	L	T	R	L	T	R
Movement						
Volume	0	126	29	63	137	0
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration			L	R	TR		LT	
PHF			0.95	0.95	0.95		0.95	
Flow Rate			27	60	162		210	
% Heavy Vehicles								
No. Lanes	0		2		1		1	
Geometry Group			1		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns			1.0	0.0	0.0		0.3	
Prop. Right-Turns			0.0	1.0	0.2		0.0	
Prop. Heavy Vehicle								
hLT-adj			0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj			-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj			1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed			0.00	0.00	0.00		0.00	

Departure Headway and Service Time

hd, initial value			3.20	3.20	3.20		3.20	
x, initial			0.02	0.05	0.14		0.19	
hd, final value			0.00	0.00	0.00		0.00	
x, final value			0.04	0.07	0.19		0.25	
Move-up time, m			2.0		2.0		2.0	
Service Time								

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity			277	310	412		460	
Delay			8.11	7.42	8.18		8.78	
LOS			A	A	A		A	
Approach: Delay			7.63		8.18		8.78	
LOS			A		A		A	
Intersection Delay	8.35							
Intersection LOS	A							

TWO-WAY STOP CONTROL SUMMARY

General Information				Site Information				
Analyst	C. CARDEN			Intersection	27TH ST. E. & AVE. K			
Agency/Co.	WILLDAN			Jurisdiction	CITY OF LANCASTER			
Date Performed	8/2/2004			Analysis Year	OPEN DAY (2006) WITH PROJECT			
Analysis Time Period	AM PEAK HOUR							
Project Description 14443 / 3000								
East/West Street: AVENUE K				North/South Street: 27TH STREET EAST				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	150	661	0	0	856	12		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate (veh/h)	157	695	0	0	901	12		
Proportion of heavy vehicles, P _{HV}	0	--	--	0	--	--		
Median type	Undivided							
RT Channelized?			0			0		
Lanes	1	2	0	0	2	0		
Configuration	L	T			T	TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	0	0	0	3	0	184		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate (veh/h)	0	0	0	3	0	193		
Proportion of heavy vehicles, P _{HV}	0	0	0	0	0	0		
Percent grade (%)	0			0				
Flared approach		N			N			
Storage		0			0			
RT Channelized?			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Control Delay, Queue Length, Level of Service								
Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
Volume, v (vph)	157						196	
Capacity, c _m (vph)	755						512	
v/c ratio	0.21						0.38	
Queue length (95%)	0.78						1.78	
Control Delay (s/veh)	11.0						16.3	
LOS	B						C	
Approach delay (s/veh)	--	--				16.3		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	C. GARDEN		Intersection	27TH ST. E. & AVE. K
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	8/2/2004		Analysis Year	OPEN DAY (2006) WITH PROJECT
Analysis Time Period	PM PEAK HOUR			

Project Description 14443 / 3000		
East/West Street: AVENUE K	North/South Street: 27TH STREET EAST	
Intersection Orientation: East-West	Study Period (hrs): 0.25	

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	204	928	0	0	810	8
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	214	976	0	0	852	8
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	8	0	199
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	0	0	8	0	209
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
Volume, v (vph)	214						217	
Capacity, c_m (vph)	790						428	
v/c ratio	0.27						0.51	
Queue length (95%)	1:10						2.79	
Control Delay (s/veh)	11.2						21.7	
LOS	B						C	
Approach delay (s/veh)	--	--					21.7	
Approach LOS	--	--					C	

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	C. CARDEN		Intersection	26TH ST. E. & AVE. J
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	8/2/2004		Analysis Year	OPEN DAY (2006) WITH PROJECT
Analysis Time Period	AM PEAK HOUR			

Project Description 14443 / 3000				
East/West Street: AVENUE J			North/South Street: 26TH STREET EAST	
Intersection Orientation: East-West			Study Period (hrs): 0.25	

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	0	667	149	16	803	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	702	156	16	845	0
Proportion of heavy vehicles, P _{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	0	1	1	1	2	0
Configuration		T	R	L	T	
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	161	0	17	0	0	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	169	0	17	0	0	0
Proportion of heavy vehicles, P _{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
Volume, v (vph)		16		186				
Capacity, c _m (vph)		791		198				
v/c ratio		0.02		0.94				
Queue length (95%)		0.06		7.64				
Control Delay (s/veh)		9.6		98.3				
LOS		A		F				
Approach delay (s/veh)	--	--	98.3					
Approach LOS	--	--	F					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	C. CARDEN	Intersection	26TH ST. E. & AVE. J
Agency/Co.	WILLDAN	Jurisdiction	CITY OF LANCASTER
Date Performed	8/2/2004	Analysis Year	OPEN DAY (2006) WITH PROJECT
Analysis Time Period	PM PEAK HOUR		

Project Description 14443 / 3000

East/West Street: AVENUE J

North/South Street: 26TH STREET EAST

Intersection Orientation: East-West

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	0	846	165	27	870	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	0	890	173	28	915	0
Proportion of heavy vehicles, P_{HV}	0	--	--	0	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	0	1	1	1	2	0
Configuration		T	R	L	T	
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	151	0	21	0	0	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate (veh/h)	158	0	22	0	0	0
Proportion of heavy vehicles, P_{HV}	0	0	0	0	0	0
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
Volume, v (vph)		28		180				
Capacity, c_m (vph)		663		136				
v/c ratio		0.04		1.32				
Queue length (95%)		0.13		11.41				
Control Delay (s/veh)		10.7		249.4				
LOS		B		F				
Approach delay (s/veh)	--	--	249.4					
Approach LOS	--	--	F					

SHORT REPORT - SIGNALIZED

General Information

Analyst **C. CARDEN**
 Agency or Co. **WILLDAN**
 Date Performed **8/2/2004**
 Time Period **AM PEAK HOUR**

Site Information

Intersection **26TH ST. E. & AVE. J**
 Area Type **All other areas**
 Jurisdiction **CITY OF LANCASTER**
 Analysis Year **OPEN DAY WITH PROJECT - W/IMP.**

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	1	1	2	0	0	0	0	0	0	0
Lane group		T	R	L	T			LR				
Volume (vph)		667	149	16	803		161		17			
% Heavy veh		0	0	0	0		0		0			
PHF		0.95	0.95	0.95	0.95		0.95		0.95			
Actuated (P/A)		A	A	A	A		A		A			
Startup lost time		2.0	2.0	2.0	2.0			2.0				
Ext. eff. green		2.0	2.0	2.0	2.0			2.0				
Arrival type		3	3	3	3			3				
Unit Extension		3.0	3.0	3.0	3.0			3.0				
Ped/Bike/RTOR Volume	0		0				0		0	0		
Lane Width		12.0	12.0	12.0	12.0			12.0				
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N		N
Parking/hr												
Bus stops/hr		0	0	0	0			0				
Unit Extension		3.0	3.0	3.0	3.0			3.0				

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = 39.0	G =	G =	G =	G = 15.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25

Cycle Length C = 60.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		702	157	17	845			187				
Lane group cap.		1235	1050	396	2346			449				
v/c ratio		0.57	0.15	0.04	0.36			0.42				
Green ratio		0.65	0.65	0.65	0.65			0.25				
Unif. delay d1		5.8	4.1	3.8	4.8			18.8				
Delay factor k		0.16	0.11	0.11	0.11			0.11				
Increm. delay d2		0.6	0.1	0.0	0.1			0.6				
PF factor		1.000	1.000	1.000	1.000			1.000				
Control delay		6.5	4.1	3.8	4.9			19.5				
Lane group LOS		A	A	A	A			B				
Apprch. delay		6.0			4.9			19.5				
Approach LOS		A			A			B				
Intersec. delay		6.8										A

SHORT REPORT - *SIGNALIZED*

General Information				Site Information			
Analyst	C. CARDEN			Intersection	26TH ST. E. & AVE. J		
Agency or Co.	WILLDAN			Area Type	All other areas		
Date Performed	8/2/2004			Jurisdiction	CITY OF LANCASTER		
Time Period	PM PEAK HOUR			Analysis Year	OPEN DAY WITH PROJECT - W/IMP.		

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	1	1	2	0	0	0	0	0	0	0
Lane group		T	R	L	T			LR				
Volume (vph)		846	165	27	870		151		21			
% Heavy veh		0	0	0	0		0		0			
PHF		0.95	0.95	0.95	0.95		0.95		0.95			
Actuated (P/A)		A	A	A	A		A		A			
Startup lost time		2.0	2.0	2.0	2.0			2.0				
Ext. eff. green		2.0	2.0	2.0	2.0			2.0				
Arrival type		3	3	3	3			3				
Unit Extension		3.0	3.0	3.0	3.0			3.0				
Ped/Bike/RTOR Volume	0		0				0		0	0		
Lane Width		12.0	12.0	12.0	12.0			12.0				
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N		N
Parking/hr												
Bus stops/hr		0	0	0	0			0				
Unit Extension		3.0	3.0	3.0	3.0			3.0				
Phasing	EW Perm	02	03	04	NB Only	06	07	08				
Timing	G = 39.0	G =	G =	G =	G = 15.0	G =	G =	G =				
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =				
Duration of Analysis (hrs) = 0.25						Cycle Length C = 60.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
Adj. flow rate		891	174	28	916			181				
Lane group cap.		1235	1050	310	2346			448				
v/c ratio		0.72	0.17	0.09	0.39			0.40				
Green ratio		0.65	0.65	0.65	0.65			0.25				
Unif. delay d1		6.9	4.1	3.9	4.9			18.8				
Delay factor k		0.28	0.11	0.11	0.11			0.11				
Increm. delay d2		2.1	0.1	0.1	0.1			0.6				
PF factor		1.000	1.000	1.000	1.000			1.000				
Control delay		9.0	4.2	4.0	5.0			19.4				
Lane group LOS		A	A	A	A			B				
Apprch. delay		8.2			5.0			19.4				
Approach LOS		A			A			B				
Intersec. delay		7.8			Intersection LOS						A	

ALL-WAY STOP CONTROL ANALYSIS

General Information		Site Information	
Analyst	C. CARDEN	Intersection	26TH ST. E. & AVE. J-4
Agency/Co.	WILLDAN	Jurisdiction	CITY OF LANCASTER
Date Performed	8/2/2004	Analysis Year	OPEN DAY (2006) WITH PROJECT
Analysis Time Period	AM PEAK HOUR		

Project ID 14443 / 3000

East/West Street: AVENUE J-4

North/South Street: 26TH STREET EAST

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	5	0	0	0	0	135
%Thrus Left Lane	50			50		
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	0	0	0	135	0	5
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.95		0.95				0.95	
Flow Rate	5		142				147	
% Heavy Vehicles								
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0		0.0				1.0	
Prop. Right-Turns	0.0		1.0				0.0	
Prop. Heavy Vehicle								
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	4.58		4.58				4.58	

Departure Headway and Service Time

hd, initial value	3.20		3.20				3.20	
x, initial	0.00		0.13				0.13	
hd, final value	4.58		4.58				4.58	
x, final value	0.01		0.14				0.18	
Move-up time, m	2.0		2.0				2.0	
Service Time	2.6		2.6		2.6		2.6	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	255		392				397	
Delay	7.61		7.27				8.30	
LOS	A		A				A	
Approach: Delay	7.61		7.27				8.30	
LOS	A		A				A	
Intersection Delay	7.79							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information		Site Information	
Analyst	C. CARDEN	Intersection	26TH ST. E. & AVE. J-4
Agency/Co.	WILLDAN	Jurisdiction	CITY OF LANCASTER
Date Performed	8/2/2004	Analysis Year	OPEN DAY (2006) WITH PROJECT
Analysis Time Period	PM PEAK HOUR		

Project ID 14443 / 3000

East/West Street: AVENUE J-4

North/South Street: 26TH STREET EAST

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	5	0	0	0	0	135
%Thrus Left Lane	50			50		
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	0	0	0	135	0	5
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.95		0.95				0.95	
Flow Rate	5		142				147	
% Heavy Vehicles								
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0		0.0				1.0	
Prop. Right-Turns	0.0		1.0				0.0	
Prop. Heavy Vehicle								
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	4.58		4.58				4.58	

Departure Headway and Service Time

hd, initial value	3.20		3.20				3.20	
x, initial	0.00		0.13				0.13	
hd, final value	4.58		4.58				4.58	
x, final value	0.01		0.14				0.18	
Move-up time, m	2.0		2.0				2.0	
Service Time	2.6		2.6		2.6		2.6	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	255		392				397	
Delay	7.61		7.27				8.30	
LOS	A		A				A	
Approach: Delay	7.61		7.27				8.30	
LOS	A		A				A	
Intersection Delay	7.79							
Intersection LOS	A							

SHORT REPORT - SIGNALIZED

General Information				Site Information			
Analyst	C. CARDEN			Intersection	30TH ST. EAST & AVE. J		
Agency or Co.	WILLDAN			Area Type	All other areas		
Date Performed	8/2/2004			Jurisdiction	CITY OF LANCASTER		
Time Period	AM PEAK HOUR			Analysis Year	OPEN DAY (2006) WITH PROJECT		

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	1	0	1	0	1	1	0	0	1	0
Lane group		LT	R		LTR		L	TR			LTR	
Volume (vph)	85	174	403	4	232	16	370	370	12	9	377	114
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time		2.0	2.0		2.0		2.0	2.0			2.0	
Ext. eff. green		2.0	2.0		2.0		2.0	2.0			2.0	
Arrival type		3	3		3		3	3			3	
Unit Extension		3.0	3.0		3.0		3.0	3.0			3.0	
Ped/Bike/RTOR Volume	0		0	0		0	0		0	0		0
Lane Width		12.0	12.0		12.0		12.0	12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0	0		0		0	0			0	
Unit Extension		3.0	3.0		3.0		3.0	3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 21.0	G =	G =	G =	G = 33.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25				Cycle Length C = 60.0				

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		272	424		265		389	402			526	
Lane group cap.		560	565		657		435	1040			1008	
v/c ratio		0.49	0.75		0.40		0.89	0.39			0.52	
Green ratio		0.35	0.35		0.35		0.55	0.55			0.55	
Unif. delay d1		15.3	17.2		14.8		12.0	7.7			8.5	
Delay factor k		0.11	0.31		0.11		0.42	0.11			0.13	
Increm. delay d2		0.7	5.6		0.4		20.4	0.2			0.5	
PF factor		1.000	1.000		1.000		1.000	1.000			1.000	
Control delay		15.9	22.8		15.2		32.4	8.0			9.0	
Lane group LOS		B	C		B		C	A			A	
Apprch. delay	20.1			15.2			20.0			9.0		
Approach LOS	C			B			B			A		
Intersec. delay	16.9			Intersection LOS						B		

SHORT REPORT - SIGNALIZED

General Information				Site Information			
Analyst	C. CARDEN			Intersection	30TH ST. EAST & AVE. J		
Agency or Co.	WILLDAN			Area Type	All other areas		
Date Performed	8/2/2004			Jurisdiction	CITY OF LANCASTER		
Time Period	PM PEAK HOUR			Analysis Year	OPEN DAY (2006) WITH PROJECT		

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	1	0	1	0	1	1	0	0	1	0
Lane group		LT	R		LTR		L	TR			LTR	
Volume (vph)	82	233	446	12	274	13	415	271	4	19	270	93
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time		2.0	2.0		2.0		2.0	2.0			2.0	
Ext. eff. green		2.0	2.0		2.0		2.0	2.0			2.0	
Arrival type		3	3		3		3	3			3	
Unit Extension		3.0	3.0		3.0		3.0	3.0			3.0	
Ped/Bike/RTOR Volume	0		0	0		0	0		0	0		0
Lane Width		12.0	12.0		12.0		12.0	12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0	0		0		0	0			0	
Unit Extension		3.0	3.0		3.0		3.0	3.0			3.0	
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 27.0	G =	G =	G =	G = 27.0	G =	G =	G =				
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =				
Duration of Analysis (hrs) = 0.25							Cycle Length C = 60.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
Adj. flow rate		331	469		315		437	289			402	
Lane group cap.		729	727		837		382	853			812	
v/c ratio		0.45	0.65		0.38		1.14	0.34			0.50	
Green ratio		0.45	0.45		0.45		0.45	0.45			0.45	
Unif. delay d1		11.4	12.8		10.9		16.5	10.7			11.7	
Delay factor k		0.11	0.22		0.11		0.50	0.11			0.11	
Increm. delay d2		0.5	2.0		0.3		91.3	0.2			0.5	
PF factor		1.000	1.000		1.000		1.000	1.000			1.000	
Control delay		11.9	14.8		11.2		107.8	10.9			12.2	
Lane group LOS		B	B		B		F	B			B	
Apprch. delay	13.6			11.2			69.3			12.2		
Approach LOS	B			B			E			B		
Intersec. delay	31.0			Intersection LOS						C		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	C. CARDEN		Intersection	30TH ST. E. & AVE. J-4
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	8/2/2004		Analysis Year	OPEN DAY (2006) WITH PROJECT
Analysis Time Period	AM PEAK HOUR			

Project Description 14443 / 3000		
East/West Street: AVENUE J-4	North/South Street: 30TH STREET EAST	
Intersection Orientation: North-South	Study Period (hrs): 0.25	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	2	732	0	0	807	62
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	2	770	0	0	849	65
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	2	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0	71	0	9
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	0	0	74	0	9
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (vph)	2						83	
C (m) (vph)	754						170	
v/c	0.00						0.49	
95% queue length	0.01						2.35	
Control Delay	9.8						44.9	
LOS	A						E	
Approach Delay	--	--					44.9	
Approach LOS	--	--					E	

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	C. CARDEN		Intersection	30TH ST. E. & AVE. J-4
Agency/Co.	WILLDAN		Jurisdiction	CITY OF LANCASTER
Date Performed	8/2/2004		Analysis Year	OPEN DAY (2006) WITH PROJECT
Analysis Time Period	PM PEAK HOUR			

Project Description 14443 / 3000				
East/West Street: AVENUE J-4			North/South Street: 30TH STREET EAST	
Intersection Orientation: North-South			Study Period (hrs): 0.25	

Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	1	716	0	0	831	74
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	1	753	0	0	874	77
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	2	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0	57	0	23
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	0	0	60	0	24
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (vph)	1						84	
C (m) (vph)	730						202	
v/c	0.00						0.42	
95% queue length	0.00						1.89	
Control Delay	9.9						34.9	
LOS	A						D	
Approach Delay	--	--				34.9		
Approach LOS	--	--				D		

SHORT REPORT - SIGNALIZED

General Information

Analyst **C. CARDEN**
 Agency or Co. **WILLDAN**
 Date Performed **8/2/2004**
 Time Period **AM PEAK HOUR**

Site Information

Intersection **30TH ST. E. & AVE. J-4**
 Area Type **All other areas**
 Jurisdiction **CITY OF LANCASTER**
 Analysis Year **OPEN DAY WITH PROJECT - W/IMP.**

Volume and Timing Input

			EB			WB			NB			SB				
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
Num. of Lanes			0	0	0	0	0	0	1	2	0	0	1	0		
Lane group				LR					L	T			TR			
Volume (vph)			71		9				2	732			807	62		
% Heavy veh			0		0				0	0			0	0		
PHF			0.95		0.95				0.95	0.95			0.95	0.95		
Actuated (P/A)			A		A				A	A			A	A		
Startup lost time				2.0					2.0	2.0			2.0			
Ext. eff. green				2.0					2.0	2.0			2.0			
Arrival type				3					3	3			3			
Unit Extension				3.0					3.0	3.0			3.0			
Ped/Bike/RTOR Volume			0		0	0						0		0		
Lane Width				12.0					12.0	12.0			12.0			
Parking/Grade/Parking			N	0	N	N		N	N	0	N	N	0	N		
Parking/hr																
Bus stops/hr				0					0	0			0			
Unit Extension				3.0					3.0	3.0			3.0			
Phasing		EB Only	02		03		04		NS Perm		06		07		08	
Timing		G = 15.0	G =		G =		G =		G = 39.0		G =		G =		G =	
		Y = 3	Y =		Y =		Y =		Y = 3		Y =		Y =		Y =	
Duration of Analysis (hrs) = 0.25										Cycle Length C = 60.0						

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		84					2	771			914	
Lane group cap.		448					301	2346			1223	
v/c ratio		0.19					0.01	0.33			0.75	
Green ratio		0.25					0.65	0.65			0.65	
Unif. delay d1		17.7					3.7	4.7			7.1	
Delay factor k		0.11					0.11	0.11			0.30	
Increm. delay d2		0.2					0.0	0.1			2.6	
PF factor		1.000					1.000	1.000			1.000	
Control delay		17.9					3.7	4.8			9.7	
Lane group LOS		B					A	A			A	
Apprch. delay	17.9						4.8			9.7		
Approach LOS	B						A			A		
Intersec. delay	7.9			Intersection LOS						A		

SHORT REPORT - SIGNALIZED

General Information				Site Information			
Analyst	C. CARDEN			Intersection	30TH ST. E. & AVE. J-4		
Agency or Co.	WILLDAN			Area Type	All other areas		
Date Performed	8/2/2004			Jurisdiction	CITY OF LANCASTER		
Time Period	PM PEAK HOUR			Analysis Year	OPEN DAY WITH PROJECT - W/IMP.		

Volume and Timing Input														
			EB			WB			NB			SB		
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes			0	0	0	0	0	0	1	2	0	0	1	0
Lane group				LR					L	T			TR	
Volume (vph)			57		23				1	716			831	74
% Heavy veh			0		0				0	0			0	0
PHF			0.95		0.95				0.95	0.95			0.95	0.95
Actuated (P/A)			A		A				A	A			A	A
Startup lost time				2.0					2.0	2.0			2.0	
Ext. eff. green				2.0					2.0	2.0			2.0	
Arrival type				3					3	3			3	
Unit Extension				3.0					3.0	3.0			3.0	
Ped/Bike/RTOR Volume			0		0	0						0		0
Lane Width				12.0					12.0	12.0			12.0	
Parking/Grade/Parking			N	0	N	N		N	N	0	N	N	0	N
Parking/hr														
Bus stops/hr				0					0	0			0	
Unit Extension				3.0					3.0	3.0			3.0	
Phasing	EB Only	02	03		04		NS Perm		06		07		08	
Timing	G = 14.0	G =	G =		G =		G = 40.0		G =		G =		G =	
	Y = 3	Y =	Y =		Y =		Y = 3		Y =		Y =		Y =	
Duration of Analysis (hrs) = 0.25									Cycle Length C = 60.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
Adj. flow rate		84					1	754			953	
Lane group cap.		412					303	2407			1253	
v/c ratio		0.20					0.00	0.31			0.76	
Green ratio		0.23					0.67	0.67			0.67	
Unif. delay d1		18.5					3.3	4.2			6.8	
Delay factor k		0.11					0.11	0.11			0.31	
Increm. delay d2		0.2					0.0	0.1			2.8	
PF factor		1.000					1.000	1.000			1.000	
Control delay		18.8					3.3	4.3			9.5	
Lane group LOS		B					A	A			A	
Apprch. delay	18.8						4.3			9.5		
Approach LOS	B						A			A		
Intersec. delay	7.8			Intersection LOS						A		

SHORT REPORT - SIGNALIZED

General Information				Site Information			
Analyst	C. CARDEN			Intersection	30TH ST. EAST & AVE. J-8		
Agency or Co.	WILLDAN			Area Type	All other areas		
Date Performed	8/2/2004			Jurisdiction	CITY OF LANCASTER		
Time Period	AM PEAK HOUR			Analysis Year	OPEN DAY (2006) WITH PROJECT		

Volume and Timing Input														
			EB			WB			NB			SB		
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes			1	1	0	1	1	0	1	1	0	1	1	0
Lane group			L	TR		L	TR		L	TR		L	TR	
Volume (vph)			100	0	63	65	0	315	57	265	70	365	377	47
% Heavy veh			0	0	0	0	0	0	0	0	0	0	0	0
PHF			0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)			A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time			2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green			2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type			3	3		3	3		3	3		3	3	
Unit Extension			3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume			0		0	0		0	0		0		0	
Lane Width			12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking			N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr														
Bus stops/hr			0	0		0	0		0	0		0	0	
Unit Extension			3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Phasing	EW Perm	02	03		04		Excl. Left		Thru & RT		07		08	
Timing	G = 18.0	G =	G =		G =		G = 15.0		G = 18.0		G =		G =	
	Y = 3	Y =	Y =		Y =		Y = 3		Y = 3		Y =		Y =	
Duration of Analysis (hrs) = 0.25									Cycle Length C = 60.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
Adj. flow rate	105	66		68	332		60	353		384	446	
Lane group cap.	204	485		407	485		451	552		451	561	
v/c ratio	0.51	0.14		0.17	0.68		0.13	0.64		0.85	0.80	
Green ratio	0.30	0.30		0.30	0.30		0.25	0.30		0.25	0.30	
Unif. delay d1	17.4	15.3		15.5	18.5		17.5	18.2		21.4	19.3	
Delay factor k	0.12	0.11		0.11	0.25		0.11	0.22		0.38	0.34	
Increm. delay d2	2.3	0.1		0.2	4.0		0.1	2.5		14.4	7.8	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	19.6	15.5		15.7	22.5		17.6	20.7		35.9	27.1	
Lane group LOS	B	B		B	C		B	C		D	C	
Approch. delay	18.0			21.3			20.2			31.2		
Approach LOS	B			C			C			C		
Intersec. delay	25.3			Intersection LOS						C		

SHORT REPORT - SIGNALIZED

General Information

Analyst **C. CARDEN**
 Agency or Co. **WILLDAN**
 Date Performed **8/2/2004**
 Time Period **PM PEAK HOUR**

Site Information

Intersection **30TH ST. EAST & AVE. J-8**
 Area Type **All other areas**
 Jurisdiction **CITY OF LANCASTER**
 Analysis Year **OPEN DAY (2006) WITH PROJECT**

Volume and Timing Input

			EB			WB			NB			SB		
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes			1	1	0	1	1	0	1	1	0	1	1	0
Lane group			L	TR		L	TR		L	TR		L	TR	
Volume (vph)			33	0	55	70	0	365	63	334	60	320	328	55
% Heavy veh.			0	0	0	0	0	0	0	0	0	0	0	0
PHF			0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)			A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time			2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green			2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type			3	3		3	3		3	3		3	3	
Unit Extension			3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume			0		0	0		0	0		0		0	
Lane Width			12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking			N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr														
Bus stops/hr			0	0		0	0		0	0		0	0	
Unit Extension			3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Phasing	EW Perm	02	03		04		Excl. Left		Thru & RT		07		08	
Timing	G = 18.0	G =	G =		G =		G = 15.0		G = 18.0		G =		G =	
	Y = 3	Y =	Y =		Y =		Y = 3		Y = 3		Y =		Y =	
Duration of Analysis (hrs) = 0.25									Cycle Length C = 60.0					

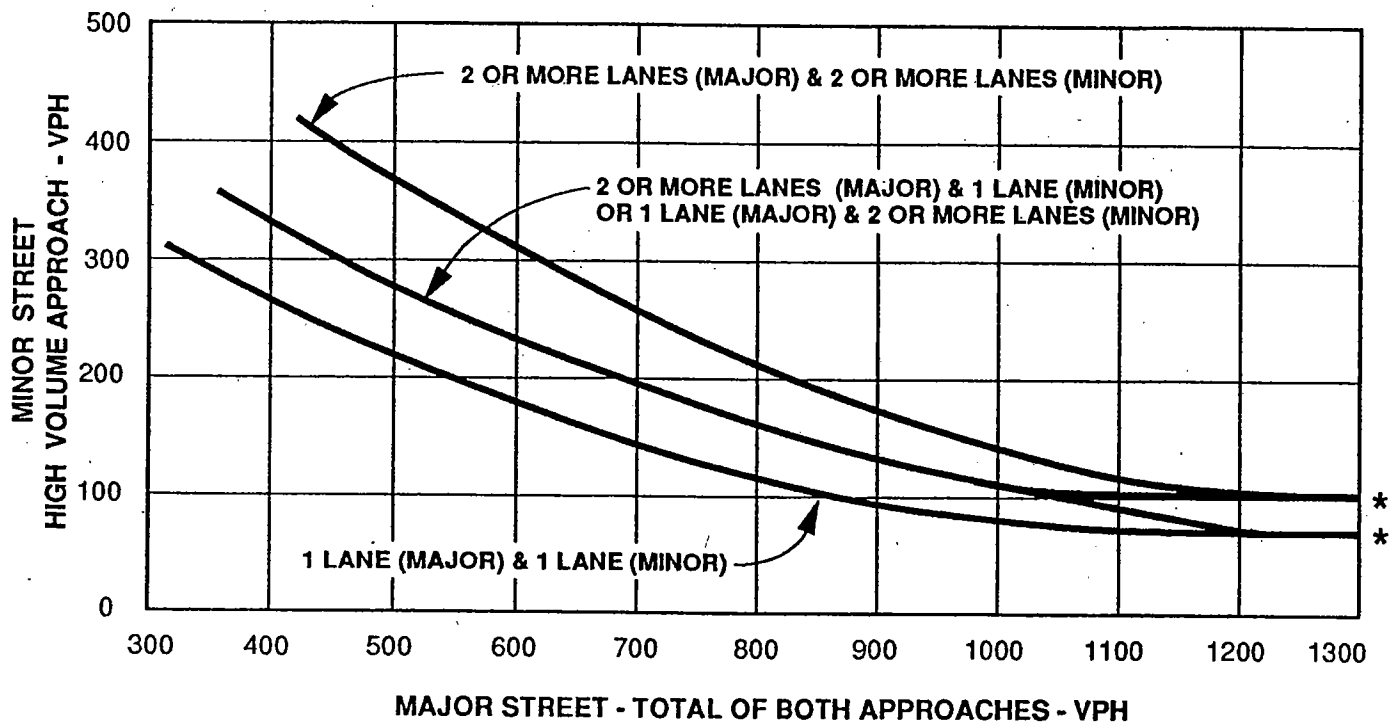
Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	35	58		74	384		66	415		337	403	
Lane group cap.	163	485		410	485		451	557		451	558	
v/c ratio	0.21	0.12		0.18	0.79		0.15	0.75		0.75	0.72	
Green ratio	0.30	0.30		0.30	0.30		0.25	0.30		0.25	0.30	
Unif. delay d1	15.7	15.2		15.5	19.3		17.5	18.9		20.8	18.8	
Delay factor k	0.11	0.11		0.11	0.34		0.11	0.30		0.30	0.28	
Increm. delay d2	0.7	0.1		0.2	8.7		0.2	5.4		6.7	4.6	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	16.4	15.4		15.8	28.0		17.7	24.4		27.5	23.4	
Lane group LOS	B	B		B	C		B	C		C	C	
Apprch. delay	15.7			26.0			23.4			25.2		
Approach LOS	B			C			C			C		
Intersec. delay	24.5			Intersection LOS						C		

APPENDIX D

TRAFFIC SIGNAL WARRANT WORKSHEETS

Figure 9-9
PEAK HOUR VOLUME WARRANT
(Rural Areas)



* NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 9-3 TRAFFIC SIGNAL WARRANTS

WARRANT 8 - Combination of WarrantsSATISFIED YES ☐ NO ☐

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME	<input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
	2. INTERRUPTION OF CONTINUOUS TRAFFIC	<input type="checkbox"/>	

WARRANT 9 - Four Hour VolumeSATISFIED* YES ☐ NO ☐

Approach Lanes		One	2 or more				Hour
Both Approaches	- Major Street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Highest Approaches	- Minor Street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

* Refer to Figure 9-6 (URBAN AREAS) or Figure 9-7 (RURAL AREAS) to determine if this warrant is satisfied.

WARRANT 10 - Peak Hour Delay

(ALL PARTS MUST BE SATISFIED)

SATISFIED YES ☐ NO ☐

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES ☐ NO ☐YES ☐ NO ☐YES ☐ NO ☐**WARRANT 11 - Peak Hour Volume**

EXISTING (2004) CONDITIONS

SATISFIED* YES ☐ NO ☒

Approach Lanes		One	2 or more				PM Peak Hour
Both Approaches	- Major Street Ave. J	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	724
Highest Approaches	- Minor Street 27 th St. E.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	25 (a)

* Refer to Figure 9-8 (URBAN AREAS) or Figure 9-9 (RURAL AREAS) to determine if this warrant is satisfied.

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

(a) Does not meet the lower threshold volume of 75 vph for a minor street.

Figure 9-3
TRAFFIC SIGNAL WARRANTS

WARRANT 8 - Combination of WarrantsSATISFIED YES ☐ NO ☐

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME	<input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
	2. INTERRUPTION OF CONTINUOUS TRAFFIC	<input type="checkbox"/>	

WARRANT 9 - Four Hour VolumeSATISFIED* YES ☐ NO ☐

Approach Lanes	One	2 or more	Hour
Both Approaches - Major Street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Highest Approaches - Minor Street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

* Refer to Figure 9-6 (URBAN AREAS) or Figure 9-7 (RURAL AREAS) to determine if this warrant is satisfied.

WARRANT 10 - Peak Hour Delay

(ALL PARTS MUST BE SATISFIED)

SATISFIED YES ☐ NO ☐

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES ☐ NO ☐YES ☐ NO ☐YES ☐ NO ☐**WARRANT 11 - Peak Hour Volume****EXISTING (2004) CONDITIONS**SATISFIED* YES ☐ NO ☒

Approach Lanes	One	2 or more	Hour
Both Approaches - Major Street <u>27th St. E</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>92</u>
Highest Approaches - Minor Street <u>Ave. J-8</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>37 (a)</u>

* Refer to Figure 9-8 (URBAN AREAS) or Figure 9-9 (RURAL AREAS) to determine if this warrant is satisfied.

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

(a) Does not meet the lower threshold volume of 100 vph for a minor street.

Figure 9-3 TRAFFIC SIGNAL WARRANTS

WARRANT 8 - Combination of WarrantsSATISFIED YES ☐ NO ☐

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME	<input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
	2. INTERRUPTION OF CONTINUOUS TRAFFIC	<input type="checkbox"/>	

WARRANT 9 - Four Hour VolumeSATISFIED* YES ☐ NO ☐

Approach Lanes		One	2 or more				Hour
Both Approaches	Major Street						
Highest Approaches	Minor Street						

* Refer to Figure 9-6 (URBAN AREAS) or Figure 9-7 (RURAL AREAS) to determine if this warrant is satisfied.

WARRANT 10 - Peak Hour Delay

(ALL PARTS MUST BE SATISFIED)

SATISFIED YES ☐ NO ☐

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES ☐ NO ☐YES ☐ NO ☐YES ☐ NO ☐**WARRANT 11 - Peak Hour Volume***EXISTING (2004) CONDITIONS*SATISFIED* YES ☐ NO ☒

Approach Lanes		One	2 or more				Peak Hour
Both Approaches	Major Street <i>Ave. K</i>		X				852
Highest Approaches	Minor Street <i>27th St. E.</i>	X					69 (a)

* Refer to Figure 9-8 (URBAN AREAS) or Figure 9-9 (RURAL AREAS) to determine if this warrant is satisfied.

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

(a) Does not meet the lower threshold volume of 75 vph for a minor street.

Figure 9-3
TRAFFIC SIGNAL WARRANTS

WARRANT 8 - Combination of WarrantsSATISFIED YES ☐ NO ☐

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME		YES <input type="checkbox"/> NO <input type="checkbox"/>
	2. INTERRUPTION OF CONTINUOUS TRAFFIC		

WARRANT 9 - Four Hour VolumeSATISFIED* YES ☐ NO ☐

Approach Lanes		One	2 or more					Hour
Both Approaches	Major Street							
Highest Approaches	Minor Street							

* Refer to Figure 9-6 (URBAN AREAS) or Figure 9-7 (RURAL AREAS) to determine if this warrant is satisfied.

WARRANT 10 - Peak Hour Delay

(ALL PARTS MUST BE SATISFIED)

SATISFIED YES ☐ NO ☐

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES ☐ NO ☐YES ☐ NO ☐YES ☐ NO ☐**WARRANT 11 - Peak Hour Volume****EXISTING (2004) CONDITIONS**SATISFIED* YES ☐ NO ☒

Approach Lanes		One	2 or more					Peak Hour
Both Approaches	Major Street <i>Ave. J</i>		X					805
Highest Approaches	Minor Street <i>26th St. E.</i>	X						35 (a)

* Refer to Figure 9-8 (URBAN AREAS) or Figure 9-9 (RURAL AREAS) to determine if this warrant is satisfied.

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

(a) Does not meet the lower threshold volume of 75 vph for a minor street.

Figure 9-3 TRAFFIC SIGNAL WARRANTS

WARRANT 8 - Combination of WarrantsSATISFIED YES ☐ NO ☐

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME	<input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
	2. INTERRUPTION OF CONTINUOUS TRAFFIC	<input type="checkbox"/>	

WARRANT 9 - Four Hour VolumeSATISFIED* YES ☐ NO ☐

Approach Lanes		One	2 or more				Hour
Both Approaches	Major Street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Highest Approaches	Minor Street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

* Refer to Figure 9-6 (URBAN AREAS) or Figure 9-7 (RURAL AREAS) to determine if this warrant is satisfied.

WARRANT 10 - Peak Hour Delay

(ALL PARTS MUST BE SATISFIED)

SATISFIED YES ☐ NO ☐

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND

YES ☐ NO ☐

2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND

YES ☐ NO ☐

3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES ☐ NO ☐**WARRANT 11 - Peak Hour Volume****EXISTING (2004) CONDITIONS**SATISFIED* YES ☒ NO ☐

Approach Lanes		One	2 or more				PM Peak Hour
Both Approaches	Major Street <u>30th St. E.</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>584</u>
Highest Approaches	Minor Street <u>Ave. J</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>245</u>

* Refer to Figure 9-8 (URBAN AREAS) or Figure 9-9 (RURAL AREAS) to determine if this warrant is satisfied.

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

Figure 9-3 TRAFFIC SIGNAL WARRANTS

WARRANT 8 - Combination of WarrantsSATISFIED YES ☐ NO ☐

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME	<input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
	2. INTERRUPTION OF CONTINUOUS TRAFFIC	<input type="checkbox"/>	

WARRANT 9 - Four Hour VolumeSATISFIED* YES ☐ NO ☐

Approach Lanes		One	2 or more				Hour
Both Approaches	- Major Street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Highest Approaches	- Minor Street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

* Refer to Figure 9-6 (URBAN AREAS) or Figure 9-7 (RURAL AREAS) to determine if this warrant is satisfied.

WARRANT 10 - Peak Hour Delay

(ALL PARTS MUST BE SATISFIED)

SATISFIED YES ☐ NO ☐

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND

YES ☐ NO ☐

2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND

YES ☐ NO ☐

3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES ☐ NO ☐**WARRANT 11 - Peak Hour Volume**SATISFIED* YES ☐ NO ☒**EXISTING (2004) CONDITIONS**

Approach Lanes		One	2 or more				Peak Hour
Both Approaches	- Major Street 30 th St. E.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	604
Highest Approaches	- Minor Street Ave. J-4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	43 (a)

* Refer to Figure 9-8 (URBAN AREAS) or Figure 9-9 (RURAL AREAS) to determine if this warrant is satisfied.

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

(a) Does not meet the lower threshold volume of 75 vph for a minor street.

Figure 9-3
TRAFFIC SIGNAL WARRANTS

WARRANT 8 - Combination of WarrantsSATISFIED YES ☐ NO ☐

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME	<input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
	2. INTERRUPTION OF CONTINUOUS TRAFFIC	<input type="checkbox"/>	

WARRANT 9 - Four Hour VolumeSATISFIED* YES ☐ NO ☐

Approach Lanes	One	2 or more				Hour
Both Approaches - Major Street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Highest Approaches - Minor Street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

* Refer to Figure 9-6 (URBAN AREAS) or Figure 9-7 (RURAL AREAS) to determine if this warrant is satisfied.

WARRANT 10 - Peak Hour Delay

(ALL PARTS MUST BE SATISFIED)

SATISFIED YES ☐ NO ☐

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND

YES ☐ NO ☐

2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND

YES ☐ NO ☐

3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES ☐ NO ☐**WARRANT 11 - Peak Hour Volume****EXISTING (2004) CONDITIONS**SATISFIED* YES ☐ NO ☒

Approach Lanes	One	2 or more				PM Peak Hour
Both Approaches - Major Street <u>30th St. E.</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>422</u>
Highest Approaches - Minor Street <u>Ave. J-8</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>107</u>

* Refer to Figure 9-8 (URBAN AREAS) or Figure 9-9 (RURAL AREAS) to determine if this warrant is satisfied.

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

Figure 9-3
TRAFFIC SIGNAL WARRANTS

WARRANT 8 - Combination of WarrantsSATISFIED YES ☐ NO ☐

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME		YES <input type="checkbox"/> NO <input type="checkbox"/>
	2. INTERRUPTION OF CONTINUOUS TRAFFIC		

WARRANT 9 - Four Hour VolumeSATISFIED* YES ☐ NO ☐

Approach Lanes	One	2 or more				Hour
Both Approaches - Major Street						
Highest Approaches - Minor Street						

* Refer to Figure 9-6 (URBAN AREAS) or Figure 9-7 (RURAL AREAS) to determine if this warrant is satisfied.

WARRANT 10 - Peak Hour Delay

(ALL PARTS MUST BE SATISFIED)

SATISFIED YES ☐ NO ☐

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND

YES ☐ NO ☐

2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND

YES ☐ NO ☐

3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES ☐ NO ☐**WARRANT 11 - Peak Hour Volume**SATISFIED* YES ☐ NO ☒*OPEN DAY (2006) WITHOUT PROJECT*

Approach Lanes	One	2 or more				PM Peak Hour
Both Approaches - Major Street <i>Ave. J</i>		X				1673
Highest Approaches - Minor Street <i>27th St. E.</i>	X					41 (a)

* Refer to Figure 9-8 (URBAN AREAS) or Figure 9-9 (RURAL AREAS) to determine if this warrant is satisfied.

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

(a) Does not meet the lower threshold volume of 75 vph for a minor street.

Figure 9-3 TRAFFIC SIGNAL WARRANTS

WARRANT 8 - Combination of WarrantsSATISFIED YES ☐ NO ☐

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME	<input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
	2. INTERRUPTION OF CONTINUOUS TRAFFIC	<input type="checkbox"/>	

WARRANT 9 - Four Hour VolumeSATISFIED* YES ☐ NO ☐

Approach Lanes	One	2 or more				Hour
Both Approaches - Major Street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Highest Approaches - Minor Street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

* Refer to Figure 9-6 (URBAN AREAS) or Figure 9-7 (RURAL AREAS) to determine if this warrant is satisfied.

WARRANT 10 - Peak Hour Delay

(ALL PARTS MUST BE SATISFIED)

SATISFIED YES ☐ NO ☐

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND

YES ☐ NO ☐

2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND

YES ☐ NO ☐

3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES ☐ NO ☐**WARRANT 11 - Peak Hour Volume**

OPEN DAY (2006) WITHOUT PROJECT

SATISFIED* YES ☐ NO ☒

Approach Lanes	One	2 or more				Peak Hour
Both Approaches - Major Street 27 th St. E.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	97
Highest Approaches - Minor Street Ave. J-8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	39 (a)

* Refer to Figure 9-8 (URBAN AREAS) or Figure 9-9 (RURAL AREAS) to determine if this warrant is satisfied.

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

(a) Does not meet the lower threshold volume of 100 vph for a minor street.

Figure 9-3 TRAFFIC SIGNAL WARRANTS

WARRANT 8 - Combination of WarrantsSATISFIED YES ☐ NO ☐

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME	<input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
	2. INTERRUPTION OF CONTINUOUS TRAFFIC	<input type="checkbox"/>	

WARRANT 9 - Four Hour VolumeSATISFIED* YES ☐ NO ☐

Approach Lanes		One	2 or more				Hour
Both Approaches	Major Street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Highest Approaches	Minor Street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

* Refer to Figure 9-6 (URBAN AREAS) or Figure 9-7 (RURAL AREAS) to determine if this warrant is satisfied.

WARRANT 10 - Peak Hour Delay

(ALL PARTS MUST BE SATISFIED)

SATISFIED YES ☐ NO ☐

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND

YES ☐ NO ☐

2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND

YES ☐ NO ☐

3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES ☐ NO ☐**WARRANT 11 - Peak Hour Volume***OPEN DAY (2006) WITHOUT PROJECT*SATISFIED* YES ☒ NO ☐

Approach Lanes		One	2 or more				PM Peak Hour
Both Approaches	Major Street <i>Ave. K</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>1835</i>
Highest Approaches	Minor Street <i>27th St. E.</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>87</i>

* Refer to Figure 9-8 (URBAN AREAS) or Figure 9-9 (RURAL AREAS) to determine if this warrant is satisfied.

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

Figure 9-3 TRAFFIC SIGNAL WARRANTS

WARRANT 8 - Combination of WarrantsSATISFIED YES ☐ NO ☐

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME		YES <input type="checkbox"/> NO <input type="checkbox"/>
	2. INTERRUPTION OF CONTINUOUS TRAFFIC		

WARRANT 9 - Four Hour VolumeSATISFIED* YES ☐ NO ☐

Approach Lanes	One	2 or more				Hour
Both Approaches - Major Street						
Highest Approaches - Minor Street						

* Refer to Figure 9-6 (URBAN AREAS) or Figure 9-7 (RURAL AREAS) to determine if this warrant is satisfied.

WARRANT 10 - Peak Hour Delay

(ALL PARTS MUST BE SATISFIED)

SATISFIED YES ☐ NO ☐

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES ☐ NO ☐YES ☐ NO ☐YES ☐ NO ☐**WARRANT 11 - Peak Hour Volume**SATISFIED* YES ☐ NO ☒*OPEN DAY (2006) WITHOUT PROJECT*

Approach Lanes	One	2 or more				PM Peak Hour
Both Approaches - Major Street <i>Ave. J</i>		X				1773
Highest Approaches - Minor Street <i>26th St. E.</i>	X					37 (a)

* Refer to Figure 9-8 (URBAN AREAS) or Figure 9-9 (RURAL AREAS) to determine if this warrant is satisfied.

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

(a) Does not meet the lower threshold volume of 15 vph for a minor street.

Figure 9-3 TRAFFIC SIGNAL WARRANTS

WARRANT 8 - Combination of WarrantsSATISFIED YES ☐ NO ☐

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME		YES <input type="checkbox"/> NO <input type="checkbox"/>
	2. INTERRUPTION OF CONTINUOUS TRAFFIC		

WARRANT 9 - Four Hour VolumeSATISFIED* YES ☐ NO ☐

Approach Lanes		One	2 or more				Hour
Both Approaches	- Major Street						
Highest Approaches	- Minor Street						

* Refer to Figure 9-6 (URBAN AREAS) or Figure 9-7 (RURAL AREAS) to determine if this warrant is satisfied.

WARRANT 10 - Peak Hour Delay

(ALL PARTS MUST BE SATISFIED)

SATISFIED YES ☐ NO ☐

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND

YES ☐ NO ☐

2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND

YES ☐ NO ☐

3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES ☐ NO ☐**WARRANT 11 - Peak Hour Volume**

OPEN DAY (2006) WITHOUT PROJECT

SATISFIED* YES ☐ NO ☒

Approach Lanes		One	2 or more				PM Peak Hour
Both Approaches	- Major Street 30 th St. E.		X				1587
Highest Approaches	- Minor Street Ave. J-4	X					45 (a)

* Refer to Figure 9-8 (URBAN AREAS) or Figure 9-9 (RURAL AREAS) to determine if this warrant is satisfied.

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

(a) Does not meet the lower threshold volume of 75 vph for a minor street.

Figure 9-3
TRAFFIC SIGNAL WARRANTS

WARRANT 8 - Combination of WarrantsSATISFIED YES ☐ NO ☐

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME	<input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
	2. INTERRUPTION OF CONTINUOUS TRAFFIC	<input type="checkbox"/>	

WARRANT 9 - Four Hour VolumeSATISFIED* YES ☐ NO ☐

Approach Lanes		One	2 or more				Hour
Both Approaches	- Major Street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Highest Approaches	- Minor Street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

* Refer to Figure 9-6 (URBAN AREAS) or Figure 9-7 (RURAL AREAS) to determine if this warrant is satisfied.

WARRANT 10 - Peak Hour Delay

(ALL PARTS MUST BE SATISFIED)

SATISFIED YES ☐ NO ☐

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND

YES ☐ NO ☐

2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND

YES ☐ NO ☐

3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES ☐ NO ☐**WARRANT 11 - Peak Hour Volume**SATISFIED* YES ☒ NO ☐**OPEN DAY (2006) WITHOUT PROJECT**

Approach Lanes		One	2 or more				PM Peak Hour
Both Approaches	- Major Street <u>30th St. E.</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>1131</u>
Highest Approaches	- Minor Street <u>Ave. J-8</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>380</u>

* Refer to Figure 9-8 (URBAN AREAS) or Figure 9-9 (RURAL AREAS) to determine if this warrant is satisfied.

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

Figure 9-3
TRAFFIC SIGNAL WARRANTS

WARRANT 8 - Combination of WarrantsSATISFIED YES ☐ NO ☐

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME	<input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
	2. INTERRUPTION OF CONTINUOUS TRAFFIC	<input type="checkbox"/>	

WARRANT 9 - Four Hour VolumeSATISFIED* YES ☐ NO ☐

Approach Lanes		One	2 or more				Hour
Both Approaches	- Major Street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Highest Approaches	- Minor Street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

* Refer to Figure 9-6 (URBAN AREAS) or Figure 9-7 (RURAL AREAS) to determine if this warrant is satisfied.

WARRANT 10 - Peak Hour Delay

(ALL PARTS MUST BE SATISFIED)

SATISFIED YES ☐ NO ☐

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND

YES ☐ NO ☐

2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND

YES ☐ NO ☐

3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES ☐ NO ☐**WARRANT 11 - Peak Hour Volume***OPEN DAY (2006) WITH PROJECT*SATISFIED* YES ☐ NO ☒

Approach Lanes		One	2 or more				PM Peak Hour
Both Approaches	- Major Street <i>Ave. J</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>1673</i>
Highest Approaches	- Minor Street <i>27th St. E</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>41 (a)</i>

* Refer to Figure 9-8 (URBAN AREAS) or Figure 9-9 (RURAL AREAS) to determine if this warrant is satisfied.

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

(a) Does not meet lower threshold volume of 75 vph for a minor street.

Figure 9-3 TRAFFIC SIGNAL WARRANTS

WARRANT 8 - Combination of WarrantsSATISFIED YES ☐ NO ☐

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME	<input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
	2. INTERRUPTION OF CONTINUOUS TRAFFIC	<input type="checkbox"/>	

WARRANT 9 - Four Hour VolumeSATISFIED* YES ☐ NO ☐

Approach Lanes		One	2 or more				Hour
Both Approaches	Major Street						
Highest Approaches	Minor Street						

* Refer to Figure 9-6 (URBAN AREAS) or Figure 9-7 (RURAL AREAS) to determine if this warrant is satisfied.

WARRANT 10 - Peak Hour Delay

(ALL PARTS MUST BE SATISFIED)

SATISFIED YES ☐ NO ☐

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND

YES ☐ NO ☐

2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND

YES ☐ NO ☐

3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES ☐ NO ☐**WARRANT 11 - Peak Hour Volume***OPEN DAY (2006) WITH PROJECT*SATISFIED* YES ☐ NO ☒

Approach Lanes		One	2 or more				Peak Hour
Both Approaches	Major Street <i>Ave. J-4</i>	<i>X</i>					<i>84</i>
Highest Approaches	Minor Street <i>27th St. E.</i>	<i>X</i>					<i>17 (a)</i>

* Refer to Figure 9-8 (URBAN AREAS) or Figure 9-9 (RURAL AREAS) to determine if this warrant is satisfied.

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

(a) Does not meet the lower threshold volume of 75 vph for a minor street.

Figure 9-3 TRAFFIC SIGNAL WARRANTS

WARRANT 8 - Combination of WarrantsSATISFIED YES ☐ NO ☐

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME		YES <input type="checkbox"/> NO <input type="checkbox"/>
	2. INTERRUPTION OF CONTINUOUS TRAFFIC		

WARRANT 9 - Four Hour VolumeSATISFIED* YES ☐ NO ☐

Approach Lanes		One	2 or more	Hour			
Both Approaches	Major Street						
Highest Approaches	Minor Street						

* Refer to Figure 9-6 (URBAN AREAS) or Figure 9-7 (RURAL AREAS) to determine if this warrant is satisfied.

WARRANT 10 - Peak Hour Delay

(ALL PARTS MUST BE SATISFIED)

SATISFIED YES ☐ NO ☐

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES ☐ NO ☐YES ☐ NO ☐YES ☐ NO ☐**WARRANT 11 - Peak Hour Volume**SATISFIED* YES ☐ NO ☒*OPEN DAY (2006) WITH PROJECT*

Approach Lanes		One	2 or more	Hour			
Both Approaches	Major Street <i>27th St. E.</i>	<i>X</i>					<i>382</i>
Highest Approaches	Minor Street <i>Ave. J-8</i>		<i>X</i>				<i>89 (a)</i>

* Refer to Figure 9-8 (URBAN AREAS) or Figure 9-9 (RURAL AREAS) to determine if this warrant is satisfied.

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

(a) Does not meet the lower threshold volume of 100 vph for a minor street.

Figure 9-3 TRAFFIC SIGNAL WARRANTS

WARRANT 8 - Combination of WarrantsSATISFIED YES ☐ NO ☐

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME	<input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
	2. INTERRUPTION OF CONTINUOUS TRAFFIC	<input type="checkbox"/>	

WARRANT 9 - Four Hour VolumeSATISFIED* YES ☐ NO ☐

Approach Lanes	One	2 or more				Hour
Both Approaches - Major Street						
Highest Approaches - Minor Street						

* Refer to Figure 9-6 (URBAN AREAS) or Figure 9-7 (RURAL AREAS) to determine if this warrant is satisfied.

WARRANT 10 - Peak Hour Delay

(ALL PARTS MUST BE SATISFIED)

SATISFIED YES ☐ NO ☐

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES ☐ NO ☐YES ☐ NO ☐YES ☐ NO ☐**WARRANT 11 - Peak Hour Volume***OPEN DAY (2006) WITH PROJECT*SATISFIED* YES ☒ NO ☐

Approach Lanes	One	2 or more				PM Peak Hour
Both Approaches - Major Street <i>Ave. J</i>		X				1908
Highest Approaches - Minor Street <i>26th St. E.</i>	X					172

* Refer to Figure 9-8 (URBAN AREAS) or Figure 9-9 (RURAL AREAS) to determine if this warrant is satisfied.

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

Figure 9-3
TRAFFIC SIGNAL WARRANTS

WARRANT 8 - Combination of WarrantsSATISFIED YES ☐ NO ☐

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME	<input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
	2. INTERRUPTION OF CONTINUOUS TRAFFIC	<input type="checkbox"/>	

WARRANT 9 - Four Hour VolumeSATISFIED* YES ☐ NO ☐

Approach Lanes		One	2 or more	Hour			
Both Approaches -	Major Street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Highest Approaches -	Minor Street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

* Refer to Figure 9-6 (URBAN AREAS) or Figure 9-7 (RURAL AREAS) to determine if this warrant is satisfied.

WARRANT 10 - Peak Hour Delay

(ALL PARTS MUST BE SATISFIED)

SATISFIED YES ☐ NO ☐

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND

YES ☐ NO ☐

2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND

YES ☐ NO ☐

3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES ☐ NO ☐**WARRANT 11 - Peak Hour Volume**SATISFIED* YES ☐ NO ☒*OPEN DAY (2006) WITH PROJECT*

Approach Lanes		One	2 or more	Hour			
Both Approaches -	Major Street <i>Ave. J-4</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Highest Approaches -	Minor Street <i>26th St. E.</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PM Peak

* Refer to Figure 9-8 (URBAN AREAS) or Figure 9-9 (RURAL AREAS) to determine if this warrant is satisfied.

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

Figure 9-3 TRAFFIC SIGNAL WARRANTS

WARRANT 8 - Combination of WarrantsSATISFIED YES ☐ NO ☐

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME	<input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
	2. INTERRUPTION OF CONTINUOUS TRAFFIC	<input type="checkbox"/>	

WARRANT 9 - Four Hour VolumeSATISFIED* YES ☐ NO ☐

Approach Lanes		One	2 or more				Hour
Both Approaches	- Major Street						
Highest Approaches	- Minor Street						

* Refer to Figure 9-6 (URBAN AREAS) or Figure 9-7 (RURAL AREAS) to determine if this warrant is satisfied.

WARRANT 10 - Peak Hour Delay

(ALL PARTS MUST BE SATISFIED)

SATISFIED YES ☐ NO ☐

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES ☐ NO ☐YES ☐ NO ☐YES ☐ NO ☐**WARRANT 11 - Peak Hour Volume**SATISFIED* YES ☒ NO ☐

OPEN DAY (2006) WITH PROJECT

Approach Lanes		One	2 or more				Hour
Both Approaches	- Major Street 30 th St. E.		X				1622
Highest Approaches	- Minor Street Ave. J-4	X					80

* Refer to Figure 9-8 (URBAN AREAS) or Figure 9-9 (RURAL AREAS) to determine if this warrant is satisfied.

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

Appendix C

Air Quality Worksheets

File Name: C:\Documents and Settings\rcrookst\Desktop\URBEMIS2002\Projects\Columbia.urb
 Project Name: Columbia
 Project Location: South Coast Air Basin (Los Angeles area)
 On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
 (Pounds/Day - Summer)

CONSTRUCTION EMISSION ESTIMATES

*** 2005 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (lbs/day,unmitigated)	28.98	233.27	209.24	0.00	15.83	10.81	5.02

*** 2006 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (lbs/day,unmitigated)	16.91	115.59	116.83	0.09	5.00	4.96	0.04

AREA SOURCE EMISSION ESTIMATES

TOTALS (lbs/day,unmitigated)	ROG	NOx	CO	SO2	PM10
	0.12	0.59	0.82	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

TOTALS (lbs/day,unmitigated)	ROG	NOx	CO	SO2	PM10
	25.72	14.54	156.73	0.14	13.25

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

TOTALS (lbs/day,unmitigated)	ROG	NOx	CO	SO2	PM10
	25.84	15.13	157.55	0.14	13.25

File Name: C:\Documents and Settings\rcrookst\Desktop\URBEMIS2002\Projects\Columbia.urb
 Project Name: Columbia
 Project Location: South Coast Air Basin (Los Angeles area)
 On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
 (Pounds/Day - Winter)

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
*** 2005 ***							
TOTALS (lbs/day,unmitigated)	28.98	233.27	209.24	0.00	15.83	10.81	5.02

	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
*** 2006 ***							
TOTALS (lbs/day,unmitigated)	16.91	115.59	116.83	0.09	5.00	4.96	0.04

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	0.04	0.58	0.23	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	12.56	21.16	149.11	0.13	13.25

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	12.60	21.74	149.34	0.13	13.25

File Name: C:\Documents and Settings\rcrookst\Desktop\URBEMIS2002\Projects\Columbia.urb
 Project Name: Columbia
 Project Location: South Coast Air Basin (Los Angeles area)
 On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
 (Pounds/Day - Winter)

Construction Start Month and Year: June, 2005
 Construction Duration: 12
 Total Land Use Area to be Developed: 17 acres
 Maximum Acreage Disturbed Per Day: 0.5 acres
 Single Family Units: 0 Multi-Family Units: 0
 Retail/Office/Institutional/Industrial Square Footage: 60350

CONSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
*** 2005***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	5.00	-	5.00
Off-Road Diesel	28.68	232.91	202.26	-	10.80	10.80	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.30	0.36	6.98	0.00	0.03	0.01	0.02
Maximum lbs/day	28.98	233.27	209.24	0.00	15.83	10.81	5.02
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	8.10	61.92	60.12	-	2.80	2.80	0.00
Bldg Const Worker Trips	0.13	0.07	1.55	0.00	0.02	0.00	0.02
Arch Coatings Off-Gas	0.00	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Off-Gas	0.00	-	-	-	-	-	-
Asphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Asphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	8.23	61.99	61.67	0.00	2.82	2.80	0.02
Max lbs/day all phases	28.98	233.27	209.24	0.00	15.83	10.81	5.02
*** 2006***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	8.10	59.60	61.55	-	2.61	2.61	0.00
Bldg Const Worker Trips	0.12	0.07	1.47	0.00	0.02	0.00	0.02
Arch Coatings Off-Gas	0.00	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Off-Gas	1.43	-	-	-	-	-	-
Asphalt Off-Road Diesel	6.88	50.79	52.05	-	2.21	2.21	0.00
Asphalt On-Road Diesel	0.32	5.11	1.19	0.09	0.15	0.14	0.01
Asphalt Worker Trips	0.05	0.03	0.65	0.00	0.01	0.00	0.01
Maximum lbs/day	16.91	115.59	116.83	0.09	5.00	4.96	0.04
Max lbs/day all phases	16.91	115.59	116.83	0.09	5.00	4.96	0.04

Phase 1 - Demolition Assumptions: Phase Turned OFF

Phase 2 - Site Grading Assumptions

Start Month/Year for Phase 2: Jun '05

Phase 2 Duration: 1.3 months

On-Road Truck Travel (VMT): 0

Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
1	Crawler Tractors	143	0.575	8.0
2	Graders	174	0.575	8.0
4	Other Equipment	190	0.620	8.0
3	Rubber Tired Dozers	352	0.590	8.0
1	Surfacing Equipment	437	0.490	8.0
1	Tractor/Loaders/Backhoes	79	0.465	8.0

Phase 3 - Building Construction Assumptions

Start Month/Year for Phase 3: Jul '05

Phase 3 Duration: 10.7 months

Start Month/Year for SubPhase Building: Jul '05

SubPhase Building Duration: 10.7 months

Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
1	Cranes	190	0.430	8.0
1	Other Equipment	190	0.620	8.0
1	Rubber Tired Loaders	165	0.465	8.0
5	Tractor/Loaders/Backhoes	79	0.465	8.0

SubPhase Architectural Coatings Turned OFF

Start Month/Year for SubPhase Asphalt: May '06

SubPhase Asphalt Duration: 0.5 months

Acres to be Paved: 6

Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
1	Other Equipment	190	0.620	8.0
1	Rollers	114	0.430	8.0
1	Rubber Tired Loaders	165	0.465	8.0
4	Tractor/Loaders/Backhoes	79	0.465	8.0

AREA SOURCE EMISSION ESTIMATES (Winter Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.04	0.58	0.23	-	0.00
Wood Stoves	0.00	0.00	0.00	0.00	0.00
Fireplaces	0.00	0.00	0.00	0.00	0.00
Landscaping - No winter emissions					
Consumer Prdcts	0.00	-	-	-	-
TOTALS(lbs/day,unmitigated)	0.04	0.58	0.23	0.00	0.00

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Elementary school	12.56	21.16	149.11	0.13	13.25
TOTAL EMISSIONS (lbs/day)	12.56	21.16	149.11	0.13	13.25

Does not include correction for passby trips.

Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2006 Temperature (F): 50 Season: Winter

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Elementary school	1.59 trips / students	850.00	1,351.50

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	55.60	2.20	97.30	0.50
Light Truck < 3,750 lbs	15.10	4.00	93.40	2.60
Light Truck 3,751- 5,750	15.90	1.90	96.90	1.20
Med Truck 5,751- 8,500	7.00	1.40	95.70	2.90
Lite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	10.00	20.00	70.00
Heavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.10	0.00	0.00	100.00
Motorcycle	1.70	82.40	17.60	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	1.20	0.00	91.70	8.30

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.5	4.9	6.0	10.3	5.5	5.5
Rural Trip Length (miles)	11.5	4.9	6.0	10.3	5.5	5.5
Trip Speeds (mph)	35.0	40.0	40.0	40.0	40.0	40.0
% of Trips - Residential	20.0	37.0	43.0			

% of Trips - Commercial (by land use)

Elementary school	20.0	10.0	70.0
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File Name: C:\Documents and Settings\rcrookst\Desktop\URBEMIS2002\Projects\Columbia.urb
 Project Name: Columbia
 Project Location: South Coast Air Basin (Los Angeles area)
 On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
 (Pounds/Day - Summer)

Construction Start Month and Year: June, 2005
 Construction Duration: 12
 Total Land Use Area to be Developed: 17 acres
 Maximum Acreage Disturbed Per Day: 0.5 acres
 Single Family Units: 0 Multi-Family Units: 0
 Retail/Office/Institutional/Industrial Square Footage: 60350

CONSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
*** 2005***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	5.00	-	5.00
Off-Road Diesel	28.68	232.91	202.26	-	10.80	10.80	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.30	0.36	6.98	0.00	0.03	0.01	0.02
Maximum lbs/day	28.98	233.27	209.24	0.00	15.83	10.81	5.02
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	8.10	61.92	60.12	-	2.80	2.80	0.00
Bldg Const Worker Trips	0.13	0.07	1.55	0.00	0.02	0.00	0.02
Arch Coatings Off-Gas	0.00	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Off-Gas	0.00	-	-	-	-	-	-
Asphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Asphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	8.23	61.99	61.67	0.00	2.82	2.80	0.02
Max lbs/day all phases	28.98	233.27	209.24	0.00	15.83	10.81	5.02
*** 2006***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	8.10	59.60	61.55	-	2.61	2.61	0.00
Bldg Const Worker Trips	0.12	0.07	1.47	0.00	0.02	0.00	0.02
Arch Coatings Off-Gas	0.00	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Off-Gas	1.43	-	-	-	-	-	-
Asphalt Off-Road Diesel	6.88	50.79	52.05	-	2.21	2.21	0.00
Asphalt On-Road Diesel	0.32	5.11	1.19	0.09	0.15	0.14	0.01
Asphalt Worker Trips	0.05	0.03	0.65	0.00	0.01	0.00	0.01
Maximum lbs/day	16.91	115.59	116.83	0.09	5.00	4.96	0.04
Max lbs/day all phases	16.91	115.59	116.83	0.09	5.00	4.96	0.04

Phase 1 - Demolition Assumptions: Phase Turned OFF

Phase 2 - Site Grading Assumptions

Start Month/Year for Phase 2: Jun '05

Phase 2 Duration: 1.3 months

On-Road Truck Travel (VMT): 0

Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
1	Crawler Tractors	143	0.575	8.0
2	Graders	174	0.575	8.0
4	Other Equipment	190	0.620	8.0
3	Rubber Tired Dozers	352	0.590	8.0
1	Surfacing Equipment	437	0.490	8.0
1	Tractor/Loaders/Backhoes	79	0.465	8.0

Phase 3 - Building Construction Assumptions

Start Month/Year for Phase 3: Jul '05

Phase 3 Duration: 10.7 months

Start Month/Year for SubPhase Building: Jul '05

SubPhase Building Duration: 10.7 months

Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
1	Cranes	190	0.430	8.0
1	Other Equipment	190	0.620	8.0
1	Rubber Tired Loaders	165	0.465	8.0
5	Tractor/Loaders/Backhoes	79	0.465	8.0

SubPhase Architectural Coatings Turned OFF

Start Month/Year for SubPhase Asphalt: May '06

SubPhase Asphalt Duration: 0.5 months

Acres to be Paved: 6

Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
1	Other Equipment	190	0.620	8.0
1	Rollers	114	0.430	8.0
1	Rubber Tired Loaders	165	0.465	8.0
4	Tractor/Loaders/Backhoes	79	0.465	8.0

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.04	0.58	0.23	-	0.00
Wood Stoves - No summer emissions					
Fireplaces - No summer emissions					
Landscaping	0.08	0.01	0.58	0.00	0.00
Consumer Prdcts	0.00	-	-	-	-
TOTALS (lbs/day, unmitigated)	0.12	0.59	0.82	0.00	0.00

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Elementary school	25.72	14.54	156.73	0.14	13.25
TOTAL EMISSIONS (lbs/day)	25.72	14.54	156.73	0.14	13.25

Does not include correction for passby trips.

Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2006 Temperature (F): 90 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Elementary school	1.59 trips / students	850.00	1,351.50

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	55.60	2.20	97.30	0.50
Light Truck < 3,750 lbs	15.10	4.00	93.40	2.60
Light Truck 3,751- 5,750	15.90	1.90	96.90	1.20
Med Truck 5,751- 8,500	7.00	1.40	95.70	2.90
Lite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	10.00	20.00	70.00
Heavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.10	0.00	0.00	100.00
Motorcycle	1.70	82.40	17.60	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	1.20	0.00	91.70	8.30

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.5	4.9	6.0	10.3	5.5	5.5
Rural Trip Length (miles)	11.5	4.9	6.0	10.3	5.5	5.5
Trip Speeds (mph)	35.0	40.0	40.0	40.0	40.0	40.0
% of Trips - Residential	20.0	37.0	43.0			

% of Trips - Commercial (by land use)

Elementary school	20.0	10.0	70.0
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26th and J (With Project)
 CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
 JUNE 1989 VERSION
 PAGE 1

JOB: 26th and J (Opening Day with Project)
 RUN: Hour 1 (WORST CASE ANGLE)
 POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 1000. (M)
 BRG= WORST CASE VD= .0 CM/S
 CLAS= 7 (G) VS= .0 CM/S
 MIXH= 1000. M AMB= 2.2 PPM
 SIGTH= 10. DEGREES TEMP= 25.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	* X1	* Y1	* X2	* Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. J E1 cruise	-600	-2	-150	-2	AG	1011	6.6	.0	10.0
B. J W1 cruise	-150	2	-600	2	AG	1021	6.6	.0	10.0
C. J E1 approac	-150	-2	0	-2	AG	1011	6.6	.0	10.0
D. J W1 departu	0	2	-150	2	AG	1021	6.6	.0	10.0
E. J E2 cruise	150	-2	600	-2	AG	867	6.6	.0	10.0
F. J W2 cruise	600	2	150	2	AG	897	6.6	.0	10.0
G. J E2 departu	0	-2	150	-2	AG	867	6.6	.0	10.0
H. J W2 approac	150	2	0	2	AG	897	6.6	.0	10.0
I. St26 N cruiss	2	-600	2	-150	AG	172	8.3	.0	10.0
J. St26 S cruiss	-2	-150	-2	-600	AG	192	8.3	.0	10.0
K. St26 N appro	2	-150	2	0	AG	172	12.3	.0	10.0
L. St26 S depar	-2	0	-2	-150	AG	192	8.9	.0	10.0

III. RECEPTOR LOCATIONS

RECEPTOR	* X	* Y	* Z
1. Recpt 1	-3	-3	1.8
2. Recpt 2	-7	-7	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* BRG (DEG)	* PRED CONC (PPM)	* A	* B	* C	CONC/LINK (PPM)					
			D	E	F	G	H				
1. Recpt 1	87.	4.1	.0	.0	.0	.0	.1	.1	.8	.6	
2. Recpt 2	83.	3.7	.0	.0	.1	.0	.0	.1	.6	.4	

RECEPTOR	* I	* J	* K	* L
1. Recpt 1	.0	.0	.0	.0
2. Recpt 2	.0	.0	.0	.0

26th and J (With Project)

26th and J (Without Project)
 CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
 JUNE 1989 VERSION
 PAGE 1

JOB: 26th and J (Opening Day Without Project)
 RUN: Hour 1 (WORST CASE ANGLE)
 POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S	Z0= 100. CM	ALT= 0. (M)
BRG= WORST CASE	VD= .0 CM/S	
CLAS= 7 (G)	VS= .0 CM/S	
MIXH= 1000. M	AMB= 2.2 PPM	
SIGTH= 10. DEGREES	TEMP= 25.0 DEGREE (C)	

II. LINK VARIABLES

LINK DESCRIPTION	* X1	* Y1	* X2	* Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. J E1 cruise	-600	-2	-150	-2	AG	876	6.6	.0	10.0
B. J W1 cruise	-150	2	-600	2	AG	886	6.6	.0	10.0
C. J E1 approach	-150	-2	0	-2	AG	876	6.6	.0	10.0
D. J W1 departure	0	2	-150	2	AG	886	6.6	.0	10.0
E. J E2 cruise	150	-2	600	-2	AG	867	6.6	.0	10.0
F. J W2 cruise	600	2	150	2	AG	897	6.6	.0	10.0
G. J E2 departure	0	-2	150	-2	AG	867	6.6	.0	10.0
H. J W2 approach	150	2	0	2	AG	897	6.6	.0	10.0
I. St26 N cruises	2	-600	2	-150	AG	37	8.3	.0	10.0
J. St26 S cruises	-2	-150	-2	-600	AG	57	8.3	.0	10.0
K. St26 N approach	2	-150	2	0	AG	37	12.3	.0	10.0
L. St26 S departure	-2	0	-2	-150	AG	57	8.9	.0	10.0

III. RECEPTOR LOCATIONS

RECEPTOR	* X	* Y	* Z
1. Recpt 1	-3	-3	1.8
2. Recpt 2	-7	-7	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* BRG (DEG)	* PRED CONC (PPM)	CONC/LINK (PPM)							
			A	B	C	D	E	F	G	H
1. Recpt 1	87.	3.8	.0	.0	.0	.0	.1	.1	.7	.6
2. Recpt 2	83.	3.4	.0	.0	.1	.0	.0	.0	.5	.3

RECEPTOR	* I	* J	* K	* L
1. Recpt 1	.0	.0	.0	.0

2. Recpt 2 * .0 .0 26th and J (Without Project)
.0 .0

30th and J-4 (With Project)
 CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
 JUNE 1989 VERSION
 PAGE 1

JOB: 30th and J-4 With Project)
 RUN: Hour 1
 POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S	Z0= 100. CM	ALT= 1000. (M)
BRG= .0 DEGREES	VD= .0 CM/S	
CLAS= 7 (G)	VS= .0 CM/S	
MIXH= 1000. M	AMB= 2.2 PPM	
SIGTH= 10. DEGREES	TEMP= 25.0 DEGREE (C)	

II. LINK VARIABLES

LINK DESCRIPTION	*	*	LINK COORDINATES (M)				*	*	VPH	EF (G/MI)	H (M)	W (M)
	*	*	X1	Y1	X2	Y2	*	*				
A. J4 E cruise	*	*	-600	-2	-150	-2	*	AG	80	8.3	.0	10.0
B. J4 W cruise	*	*	-150	2	-600	2	*	AG	75	8.3	.0	10.0
C. J4 E approac	*	*	-150	-2	0	-2	*	AG	80	12.3	.0	10.0
D. J4 W depart	*	*	0	2	-150	2	*	AG	75	8.9	.0	10.0
E. St30 N1 crui	*	*	2	-600	2	-150	*	AG	717	7.0	.0	10.0
F. St30 S1 crui	*	*	-2	-150	-2	-600	*	AG	854	7.0	.0	10.0
G. St30 N1 appr	*	*	2	-150	2	0	*	AG	717	7.0	.0	10.0
H. St 30 S1 dep	*	*	-2	0	-2	-150	*	AG	854	7.0	.0	10.0
I. St30 N2 crui	*	*	2	150	2	600	*	AG	773	7.0	.0	10.0
J. St30 S2 crui	*	*	-2	600	-2	150	*	AG	905	7.0	.0	10.0
K. St30 N2 depa	*	*	2	0	2	150	*	AG	773	7.0	.0	10.0
L. St30 S2 appr	*	*	-2	150	-2	0	*	AG	905	7.0	.0	10.0

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M)		
	*	X	Y	Z
1. Recpt 1	*	-3	-3	1.8
2. Recpt 2	*	-7	-7	1.8

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

RECEPTOR	*	PRED CONC (PPM)	*	CONC/LINK (PPM)									
	*	*	*	A	B	C	D	E	F	G	H	I	J
1. Recpt 1	*	4.0	*	.0	.0	.0	.0	.0	.0	.0	.0	.1	.2
2. Recpt 2	*	3.3	*	.0	.0	.0	.0	.0	.0	.0	.0	.1	.2

RECEPTOR	*	CONC/LINK (PPM)	
	*	K	L
1. Recpt 1	*	.5	.8

2. Recpt 2 * .2 .5 30th and J-4 (With Project)

30th and J-4 (Without Project)
 CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
 JUNE 1989 VERSION
 PAGE 1

JOB: 30th and J-4 (Without Project)
 RUN: Hour 1
 POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S
 BRG= .0 DEGREES
 CLAS= 7 (G)
 MIXH= 1000. M
 SIGTH= 10. DEGREES
 Z0= 100. CM
 VD= .0 CM/S
 VS= .0 CM/S
 AMB= 2.2 PPM
 TEMP= 25.0 DEGREE (C)
 ALT= 1000. (M)

II. LINK VARIABLES

LINK DESCRIPTION	* *	LINK COORDINATES (M)	* *	TYPE	VPH	EF (G/MI)	H (M)	W (M)
		X1 Y1 X2 Y2						
A. J4 E cruise	*	-600 -2 -150 -2	*	AG	45	8.3	.0	10.0
B. J4 W cruise	*	-150 2 -600 2	*	AG	40	8.3	.0	10.0
C. J4 E approach	*	-150 -2 0 -2	*	AG	45	12.3	.0	10.0
D. J4 W depart	*	0 2 -150 2	*	AG	40	8.9	.0	10.0
E. St30 N1 crui	*	2 -600 2 -150	*	AG	717	7.0	.0	10.0
F. St30 S1 crui	*	-2 -150 -2 -600	*	AG	854	7.0	.0	10.0
G. St30 N1 appr	*	2 -150 2 0	*	AG	717	7.0	.0	10.0
H. St 30 S1 dep	*	-2 0 -2 -150	*	AG	854	7.0	.0	10.0
I. St30 N2 crui	*	2 150 2 600	*	AG	738	7.0	.0	10.0
J. St30 S2 crui	*	-2 600 -2 150	*	AG	870	7.0	.0	10.0
K. St30 N2 depa	*	2 0 2 150	*	AG	738	7.0	.0	10.0
L. St30 S2 appr	*	-2 150 -2 0	*	AG	870	7.0	.0	10.0

III. RECEPTOR LOCATIONS

RECEPTOR	* *	COORDINATES (M)
		X Y Z
1. Recpt 1	*	-3 -3 1.8
2. Recpt 2	*	-7 -7 1.8

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

RECEPTOR	* * * *	PRED CONC (PPM)	* *	CONC/LINK (PPM)									
				A	B	C	D	E	F	G	H	I	J
1. Recpt 1	*	3.9	*	.0	.0	.0	.0	.0	.0	.0	.0	.1	.2
2. Recpt 2	*	3.3	*	.0	.0	.0	.0	.0	.0	.0	.0	.1	.2

RECEPTOR	* * *	CONC/LINK (PPM)
		K L
	*	

30th and J-4 (Without Project)

1. Recpt 1	*	.5	.8
2. Recpt 2	*	.2	.5

Appendix D

Noise Assessment

DATA INPUT MENU

1. ROADWAY/SEGMENT : 26th Street East - Ave J to Ave J-4 -01-2005
 2. NOTES : Year 2004 (Existing Conditions) 09:46:24

ROADWAY INPUTS:

3. REFERENCE NOISE EMISSION... CALUENO
 4. AVERAGE DAILY TRAFFIC... 900
 MED. TRUCKS HUY. TRUCKS AUTOS
 5. PK. HR. % 9.00 9.00 9.00
 6. ADI % 1.00 0.50 98.50
 7. SPEED 25.00 25.00 25.00
 8. TRAF. DISTRIBUTION CLASS... URB/SUB
 9. ACTIVE HALF WIDTH... 6
 10. % ROAD GRADIENT... 0
 11. ATMOSPHERIC ABSORPTION... V<STAMINA>
 12. GROUND REFLECT (alpha) 0.50 SOFT
 13. ANGLE OF VIEW 180 DEG
 14. SHIELDING/CALIBRATION (AB) 0
 15. CL ROAD TO RECEPTOR DISTANCE... 50
 16. COMPOSITE CNEL < 0 > = 0.00

BARRIER OPTION:

18. BARRIER TYPE... NONE
 19. ROAD ELEU... 0
 20. RECEPTOR BASE ELEU... 0
 21. BARRIER BASE ELEU... 0
 22. RECEPTOR HEIGHT... 5
 23. BARRIER HEIGHT... 0
 24. BARRIER TO RECEPTOR DIST... 0

PROGRAM ACTIONS:

FUNCTION KEYS

F1 FOR HELP AT ANY TIME
 F2 TO QUIT AT ANY TIME
 F3 RE-START FHWA PROGRAM
 F4 CONTOUR DISTANCE CALCULATIONS
 F5 SPECIFIED DISTANCE CALCULATIONS
 F6 AFTER SELECTION FOR DATA LOOP
 F10 FOR MORE SELECTIONS

SELECT A NUMBER TO CHANGE DATA OR PROCEED IN PROGRAM :

*** UNATTENUATED NOISE LEVELS, dB ***

DESCRIPTOR	AUTOS	MED. TRUCKS	HUY. TRUCKS	COMPOSITE
PK. HR. LEQ	49.27	40.99	45.63	51.26
LEQDAY	47.83	39.94	44.67	49.99
LEQNITE	40.01	32.04	36.88	42.18
CNEL	49.24	40.73	45.36	51.14
LDN	48.63	40.50	45.24	50.70
VIEW-ANGLE(CNEL)	-1.18	-1.18	-1.18	-1.18
ATMOSPHERIC(CNEL)	-0.09	-0.09	-0.09	-0.09
BARRIER	0.00	0.00	0.00	0.00 (CNEL)

*** ATTENUATED NOISE LEVELS, dB ***

PK. HR. LEQ	48.01	39.72	44.36	50.00
LEQ<12>DAY	46.57	38.67	43.40	48.73
LEQNITE	38.74	30.78	35.62	40.91
CNEL	47.97	39.47	44.10	49.88
LDN	47.37	39.23	43.97	49.44

<A>DD TO COMPOSITE LEVEL OR GO TO <D>ATA INPUT MENU? █

DATA INPUT MENU

1. ROADWAY/SEGMENT : 26th Street East - Ave J to Ave J-4 01-2005
 2. NOTES : Year 2006 without Project 09:43:27

ROADWAY INPUTS:

3. REFERENCE NOISE EMISSION... CALUENO
 4. AVERAGE DAILY TRAFFIC... 940
 MED. TRUCKS HUY. TRUCKS AUTOS
 5. PK. HR. % 9.00 9.00 9.00
 6. ADT % 1.00 0.50 98.50
 7. SPEED 25.00 25.00 25.00
 8. TRAF. DISTRIBUTION CLASS... URB/SUB
 9. ACTIVE HALF WIDTH... 6
 10. % ROAD GRADIENT... 0
 11. ATMOSPHERIC ABSORPTION... Y<STAMINA>
 12. GROUND EFFECT (alpha)... 0.50 SOFT
 13. ANGLE OF VIEW... 180 DEG
 14. SHIELDING/CALIBRATION (AB)... 0
 15. CL ROAD TO RECEPTOR DISTANCE... 50
 16. COMPOSITE CNEL < 0> = 0.00

BARRIER OPTION:

18. BARRIER TYPE... NONE
 19. ROAD ELEV... 0
 20. RECEPTOR BASE ELEV... 0
 21. BARRIER BASE ELEV... 0
 22. RECEPTOR HEIGHT... 5
 23. BARRIER HEIGHT... 0
 24. BARRIER TO RECEPTOR DIST... 0

PROGRAM ACTIONS:

FUNCTION KEYS

F1 FOR HELP AT ANY TIME
 F2 TO QUIT AT ANY TIME
 F3 RE-START MAIN PROGRAM
 F4 CONTOUR DISTANCE CALCULATIONS
 F5 SPECIFIED DISTANCE CALCULATIONS
 F6 AFTER SELECTION FOR DATA LOOP
 F10 FOR MORE SELECTIONS

SELECT A NUMBER TO CHANGE DATA OR PROCEED IN PROGRAM : █

*** UNATTENUATED NOISE LEVELS, dB ***

DESCRIPTOR	AUTOS	MED. TRUCKS	HUY. TRUCKS	COMPOSITE
PK. HR. LEQ	49.46	41.17	45.82	51.45
LEQDAY	48.02	40.13	44.85	50.18
LEQNITE	40.20	32.23	37.07	42.36
CNEL	49.43	40.22	45.55	51.33
LDN	48.82	40.69	45.43	50.89
VIEW-ANGLE<CNEL>	-1.18	-1.18	-1.18	-1.18
ATMOSPHERIC<CNEL>	-0.09	-0.09	-0.09	-0.09
BARRIER	0.00	0.00	0.00	0.00 <CNEL>

*** ATTENUATED NOISE LEVELS, dB ***

PK. HR. LEQ	48.20	39.91	44.55	50.19
LEQ<12>DAY	46.76	38.86	43.59	48.92
LEQNITE	38.93	30.97	35.81	41.10
CNEL	48.16	39.65	44.29	50.07
LDN	47.56	39.42	44.16	49.63

<A>DD TO COMPOSITE LEVEL OR GO TO <D>DATA INPUT MENU? █

DATA INPUT MENU

1. ROADWAY/SEGMENT : 26th Street East - Ave J to Ave J-4 01-2005
2. NOTES : Year 2006 with Project 07:32:32

ROADWAY INPUTS:

3. REFERENCE NOISE EMISSION... CALUENO
4. AVERAGE DAILY TRAFFIC... 1480
MED. TRUCKS HUY. TRUCKS AUTOS
5. PK. HR. % 9.00 9.00 9.00
6. ADT % 1.00 0.50 98.50
7. SPEED 25.00 25.00 25.00
8. TRAF. DISTRIBUTION CLASS... URB/SUB
9. ACTIVE HALF WIDTH... 6
10. % ROAD GRADIENT... 0
11. ATMOSPHERIC ABSORPTION... F(STERMINA)
12. GROUND EFFECT (alpha)... 0.50 SOFT
13. ANGLE OF VIEW... 180 DEG
14. SHIELDING/CALIBRATION (AB)... 0
15. CL ROAD TO RECEPTOR DISTANCE... 50
16. COMPOSITE CNEL < 0 > = 0.00

BARRIER OPTION:

18. BARRIER TYPE... NONE
19. ROAD ELEU... 0
20. RECEPTOR BASE ELEU... 0
21. BARRIER BASE ELEU... 0
22. RECEPTOR HEIGHT... 5
23. BARRIER HEIGHT... 0
24. BARRIER TO RECEPTOR DIST... 0

PROGRAM ACTIONS:

FUNCTION KEYS

F1 FOR HELP AT ANY TIME
F2 TO QUIT AT ANY TIME
F3 RE-START FHWA PROGRAM
F4 CONTOUR DISTANCE CALCULATIONS
F5 SPECIFIED DISTANCE CALCULATIONS
F6 AFTER SELECTION FOR DATA LOOP
F10 FOR MORE SELECTIONS

SELECT A NUMBER TO CHANGE DATA OR PROCEED IN PROGRAM :

*** UNATTENUATED NOISE LEVELS, dB ***

DESCRIPTOR	AUTOS	MED. TRUCKS	HUY. TRUCKS	COMPOSITE
PK. HR. LEQ	51.43	43.15	47.79	53.42
LEQDAY	49.99	42.10	46.83	52.15
LEQNITE	42.17	34.20	39.04	44.34
CNEL	51.40	42.89	47.52	53.30
LDN	50.79	42.66	47.40	52.86
VIEW ANGLE(CNEL)	-1.18	-1.18	-1.18	-1.18
ATMOSPHERIC(CNEL)	-0.09	-0.09	-0.09	-0.09
BARRIER	0.00	0.00	0.00	0.00 (CNEL)

*** ATTENUATED NOISE LEVELS, dB ***

PK. HR. LEQ	50.17	41.88	46.52	52.16
LEQ(12)DAY	48.73	40.83	45.56	50.89
LEQNITE	40.90	32.94	37.78	43.07
CNEL	50.13	41.63	46.26	52.04
LDN	49.53	41.39	46.13	51.60

<A>DD TO COMPOSITE LEVEL OR GO TO <D>ATA INPUT MENU? █

DATA INPUT MENU

1. ROADWAY/SEGMENT : 27th Street East - Ave J-4 to Ave J-8 03-01-2005
 2. NOTES : Year 2004 (Existing Conditions) 09:24:32

ROADWAY INPUTS:

3. REFERENCE NOISE EMISSION... CALUENO
 4. AVERAGE DAILY TRAFFIC... 450
 MED. TRUCKS HUY. TRUCKS AUTOS
 5. PK. HR. % 9.00 9.00 9.00
 6. ADT % 1.00 0.50 98.50
 7. SPEED 25.00 25.00 25.00
 8. TRAF. DISTRIBUTION CLASS... URB/SUB
 9. ACTIVE HALF-WIDTH... 6
 10. % ROAD GRADIENT... 0
 11. ATMOSPHERIC ABSORPTION... Y<STAMINA>
 12. GROUND EFFECT (alpha) 0.50 SOFT
 13. ANGLE OF VIEW 180 DEG
 14. SHIELDING/CALIBRATION (dB) 0
 15. CL ROAD TO RECEPTOR DISTANCE 50
 16. COMPOSITE CNEL (0) = 0.00

BARRIER OPTION:

18. BARRIER TYPE... NONE
 19. ROAD ELEU... 0
 20. RECEPTOR BASE ELEU... 0
 21. BARRIER BASE ELEU... 0
 22. RECEPTOR HEIGHT... 5
 23. BARRIER HEIGHT... 0
 24. BARRIER TO RECEPTOR DIST... 0

PROGRAM ACTIONS:

FUNCTION KEYS

F1 FOR HELP AT ANY TIME
 F2 TO QUIT AT ANY TIME
 F3 RE-START FHWA PROGRAM
 F4 CONTOUR DISTANCE CALCULATIONS
 F5 SPECIFIED DISTANCE CALCULATIONS
 F6 AFTER SELECTION FOR DATA LOOP
 F10 FOR MORE SELECTIONS

SELECT A NUMBER TO CHANGE DATA OR PROCEED IN PROGRAM :

*** UNATTENUATED NOISE LEVELS, dB ***

DESCRIPTOR	AUTOS	MED. TRUCKS	HUY. TRUCKS	COMPOSITE
PK. HR. LEQ	46.26	37.98	42.62	48.25
LEQDAY	44.82	36.93	41.66	46.98
LEQNITE	37.00	29.03	33.87	39.16
CNEL	46.23	37.72	42.35	48.13
LDN	45.62	37.49	42.23	47.69
VIEW-ANGLE<CNEL>	-1.18	-1.18	-1.18	-1.18
ATMOSPHERIC<CNEL>	-0.09	-0.09	-0.09	-0.09
BARRIER	0.00	0.00	0.00	0.00 <CNEL>

*** ATTENUATED NOISE LEVELS, dB ***

PK. HR. LEQ	45.00	36.71	41.35	46.99
LEQ<12>DAY	43.56	35.66	40.39	45.72
LEQNITE	35.73	27.77	32.61	37.90
CNEL	44.96	36.46	41.09	46.87
LDN	44.36	36.22	40.96	46.43

<A>DD TO COMPOSITE LEVEL OR GO TO <D>DATA INPUT MENU?

DATA INPUT MENU

1. ROADWAY/SEGMENT : 27th Street East - Ave J-4 to Ave J-8 -01-2005
 2. NOTES : Year 2006 without Project 09:31:53

ROADWAY INPUTS:

3. REFERENCE NOISE EMISSION... CALUENO
 4. AVERAGE DAILY TRAFFIC... 480
 MED. TRUCKS HUV. TRUCKS AUTOS
 5. PR. HR. % 9.00 9.00 9.00
 6. ADT % 1.00 0.50 98.50
 7. SPEED 25.00 25.00 25.00
 8. TRAF. DISTRIBUTION CLASS... URB/SUB
 9. ACTIVE-HALF-WIDTH... 6
 10. % ROAD GRADIENT... 0
 11. ATMOSPHERIC ABSORPTION... Y<STAMINA>
 12. GROUND EFFECT (alpha)... 0.50 SOFT
 13. ANGLE OF VIEW... 180 DEG
 14. SHIELDING/CALIBRATION (ab)... 0
 15. GE. ROAD TO RECEPTOR DISTANCE... 50
 16. COMPOSITE CNEL < 00 > = 0.00

BARRIER OPTION:

18. BARRIER TYPE... NONE
 19. ROAD ELEU... 0
 20. RECEPTOR BASE ELEU... 0
 21. BARRIER BASE ELEU... 0
 22. RECEPTOR HEIGHT... 5
 23. BARRIER HEIGHT... 0
 24. BARRIER TO RECEPTOR DIST... 0

PROGRAM ACTIONS:

FUNCTION KEYS

F1 FOR HELP AT ANY TIME
 F2 TO QUIT AT ANY TIME
 F3 RE-START PHWA PROGRAM
 F4 CONTOUR DISTANCE CALCULATIONS
 F5 SPECIFIED DISTANCE CALCULATIONS
 F6 AFTER SELECTION FOR DATA LOOP
 F10 FOR MORE SELECTIONS

SELECT A NUMBER TO CHANGE DATA OR PROCEED IN PROGRAM :

*** UNATTENUATED NOISE LEVELS, dB ***

DESCRIPTOR	AUTOS	MED. TRUCKS	HUV. TRUCKS	COMPOSITE
PK. HR. LEQ	46.54	38.26	42.90	48.53
LEQDAY	45.10	37.21	41.94	47.26
LEQNITE	37.28	29.31	34.15	39.45
CNEL	46.51	38.00	42.63	48.41
LDN	45.90	37.77	42.51	47.97
VIEW-ANGLE<CNEL>	-1.18	-1.18	-1.18	-1.18
ATMOSPHERIC<CNEL>	-0.09	-0.09	-0.09	-0.09
BARRIER	0.00	0.00	0.00	0.00 <CNEL>

*** ATTENUATED NOISE LEVELS, dB ***

PK. HR. LEQ	45.28	36.99	41.63	47.27
LEQ<12>DAY	43.84	35.94	40.67	46.00
LEQNITE	36.01	28.05	32.89	38.18
CNEL	45.24	36.74	41.37	47.15
LDN	44.64	36.50	41.24	46.71

<A>DD TO COMPOSITE LEVEL OR GO TO <D>DATA INPUT MENU?

DATA INPUT MENU

1. ROADWAY/SEGMENT : 27th Street East - Ave J-4 to Ave J-8 01-2005
 2. NOTES : Year 2006 with Project 09-35-50

ROADWAY INPUTS:

3. REFERENCE NOISE EMISSION... CALUENO
 4. AVERAGE DAILY TRAFFIC... 1155
 MED. TRUCKS HUY. TRUCKS AUTOS
 5. PK. HR. % 9.00 9.00 9.00
 6. ADI % 1.00 0.50 98.50
 7. SPEED 25.00 25.00 25.00
 8. TRAF. DISTRIBUTION CLASS... URB/SUB
 9. ACTIVE HALF WIDTH... 6
 10. % ROAD GRADIENT... 0
 11. ATMOSPHERIC ABSORPTION... Y(STAMINA)
 12. GROUND EFFECT (alpha)... 0.50 SOFT
 13. ANGLE OF VIEW... 180 DEG
 14. SHIELDING/CALIBRATION (AB)... 0
 15. CL ROAD TO RECEPTOR DISTANCE... 50
 16. COMPOSITE CNEL < 0 > = 0.00

BARRIER OPTION:

18. BARRIER TYPE... NONE
 19. ROAD ELEU... 0
 20. RECEPTOR BASE ELEU... 0
 21. BARRIER BASE ELEU... 0
 22. RECEPTOR HEIGHT... 5
 23. BARRIER HEIGHT... 0
 24. BARRIER TO RECEPTOR DIST... 0

PROGRAM ACTIONS:

FUNCTION KEYS

F1 FOR HELP AT ANY TIME
 F2 TO QUIT AT ANY TIME
 F3 RE-START FNUA PROGRAM
 F4 CONTOUR DISTANCE CALCULATIONS
 F5 SPECIFIED DISTANCE CALCULATIONS
 F6 AFTER SELECTION FOR DATA LOOP
 F10 FOR MORE SELECTIONS

SELECT A NUMBER TO CHANGE DATA OR PROCEED IN PROGRAM :

*** UNATTENUATED NOISE LEVELS, dB ***

DESCRIPTOR	AUTOS	MED. TRUCKS	HUY. TRUCKS	COMPOSITE
PK. HR. LEQ	50.36	42.07	46.71	52.34
LEQDAY	48.92	41.02	45.75	51.08
LEQNITE	41.09	33.13	37.97	43.26
CNEL	50.32	41.81	46.45	52.23
LDN	49.72	41.58	46.32	51.79
VIEW-ANGLE(CNEL)	-1.18	-1.18	-1.18	-1.18
ATMOSPHERIC(CNEL)	-0.09	-0.09	-0.09	-0.09
BARRIER	0.00	0.00	0.00	0.00 (CNEL)

*** ATTENUATED NOISE LEVELS, dB ***

PK. HR. LEQ	49.09	40.80	45.45	51.08
LEQ<12>DAY	47.65	39.76	44.49	49.81
LEQNITE	39.83	31.86	36.70	41.99
CNEL	49.06	40.55	45.18	50.96
LDN	48.45	40.32	45.06	50.52

<A>DD TO COMPOSITE LEVEL OR GO TO <D>DATA INPUT MENU?

DATA INPUT MENU

1. ROADWAY/SEGMENT : Avenue J-4 - 27th St East to 30th St East 01-2005
 2. NOTES : Year 2004 (Existing Conditions) 09:50:34

ROADWAY INPUTS:

3. REFERENCE NOISE EMISSION... CALUENO
 4. AVERAGE DAILY TRAFFIC... 810
 MED. TRUCKS HUY. TRUCKS AUTOS
 5. PK. HR. % 9.00 9.00 9.00
 6. ADI % 1.00 0.50 98.50
 7. SPEED 25.00 25.00 25.00
 8. TRAF. DISTRIBUTION CLASS... URB/SUB
 9. ACTIVE HALF WIDTH... 6
 10. % ROAD GRADIENT... 0
 11. ATMOSPHERIC ABSORPTION... Y<STAMINA>
 12. GROUND EFFECT (alpha)... 0.50 SOFT
 13. ANGLE OF VIEW... 180 DEG
 14. SHIELDING/CALIBRATION (AB)... 0
 15. CL ROAD TO RECEPTOR DISTANCE... 50
 16. COMPOSITE CNEL (0) = 0.00

BARRIER OPTION:

18. BARRIER TYPE... NONE
 19. ROAD ELEU... 0
 20. RECEPTOR BASE ELEU... 0
 21. BARRIER BASE ELEU... 0
 22. RECEPTOR HEIGHT... 5
 23. BARRIER HEIGHT... 0
 24. BARRIER TO RECEPTOR DIST... 0

PROGRAM ACTIONS:

FUNCTION KEYS

F1 FOR HELP AT ANY TIME
 F2 TO QUIT AT ANY TIME
 F3 RE-START FHWA PROGRAM
 F4 CONTOUR DISTANCE CALCULATIONS
 F5 SPECIFIED DISTANCE CALCULATIONS
 F6 AFTER SELECTION FOR DATA LOOP
 F10 FOR MORE SELECTIONS

SELECT A NUMBER TO CHANGE DATA OR PROCEED IN PROGRAM : █

*** UNATTENUATED NOISE LEVELS, dB ***

DESCRIPTOR	AUTOS	MED. TRUCKS	HUY. TRUCKS	COMPOSITE
PK. HR. LEQ	48.82	40.53	45.17	50.80
LEQDAY	47.38	39.48	44.21	49.54
LEQNITE	39.55	31.59	36.43	41.92
CNEL	48.78	40.27	44.91	50.69
LDN	48.18	40.04	44.78	50.25
VIEW-ANGLE(CNEL)	-1.18	-1.18	-1.18	-1.18
ATMOSPHERIC(CNEL)	-0.09	-0.09	-0.09	-0.09
BARRIER	0.00	0.00	0.00	0.00 (CNEL)

*** ATTENUATED NOISE LEVELS, dB ***

PK. HR. LEQ	47.55	39.26	43.91	49.54
LEQ<12>DAY	46.11	38.21	42.94	48.27
LEQNITE	38.29	30.32	35.16	40.45
CNEL	47.52	39.01	43.64	49.42
LDN	46.91	38.78	43.52	48.98

<A>DD TO COMPOSITE LEVEL OR GO TO <D>ATA INPUT MENU? █

DATA INPUT MENU

1. ROADWAY/SEGMENT : Avenue J-4 - 27th St East to 30th St East -01-2005
 2. NOTES : Year 2006 without Project 09:54:48

ROADWAY INPUTS:

3. REFERENCE NOISE EMISSION... CALUENO
 4. AVERAGE DAILY TRAFFIC... 850
 MED. TRUCKS HUY. TRUCKS AUTOS
 5. PK. HR. % 9.00 9.00 9.00
 6. ADI % 1.00 0.50 98.50
 7. SPEED 25.00 25.00 25.00
 8. TRAF. DISTRIBUTION CLASS... URB/SUB
 9. ACTUAL HALF-WIDTH... 6
 10. % ROAD GRADIENT... 0
 11. ATMOSPHERIC ABSORPTION... Y<STAMINA>
 12. GROUND EFFECT (alpha)... 0.50 SOFT
 13. ANGLE OF VIEW... 180 DEG
 14. SHIELDING/CALIBRATION (ab)... 0
 15. CL ROAD TO RECEPTOR DISTANCE... 50
 16. COMPOSITE CNEL < 0> = 0.00

BARRIER OPTION:

18. BARRIER TYPE... NONE
 19. ROAD ELEU... 0
 20. RECEPTOR BASE ELEU... 0
 21. BARRIER BASE ELEU... 0
 22. RECEPTOR HEIGHT... 5
 23. BARRIER HEIGHT... 0
 24. BARRIER TO RECEPTOR DIST... 0

PROGRAM ACTIONS:

FUNCTION KEYS

F1 FOR HELP AT ANY TIME
 F2 TO QUIT AT ANY TIME
 F3 RE-START FHWA PROGRAM
 F4 CONTOUR DISTANCE CALCULATIONS
 F5 SPECIFIED DISTANCE CALCULATIONS
 F6 AFTER SELECTION FOR DATA LOOP
 F10 FOR MORE SELECTIONS

SELECT A NUMBER TO CHANGE DATA OR PROCEED IN PROGRAM :

*** UNATTENUATED NOISE LEVELS, dB ***

DESCRIPTOR	AUTOS	MED. TRUCKS	HUY. TRUCKS	COMPOSITE
PK. HR. LEQ	49.02	40.74	45.38	51.01
LEQDAY	47.59	39.69	44.42	49.75
LEQNITE	39.76	31.80	36.64	41.93
CNEL	48.99	40.48	45.12	50.90
LDN	48.38	40.25	44.99	50.46
VIEW-ANGLE<CNEL>	-1.18	-1.18	-1.18	-1.18
ATMOSPHERIC<CNEL>	-0.09	-0.09	-0.09	-0.09
BARRIER	0.00	0.00	0.00	0.00 <CNEL>

*** ATTENUATED NOISE LEVELS, dB ***

PK. HR. LEQ	47.76	39.47	44.12	49.75
LEQ<12>DAY	46.32	38.42	43.15	48.48
LEQNITE	38.50	30.53	35.37	40.66
CNEL	47.73	39.22	43.85	49.63
LDN	47.12	38.99	43.72	49.19

<A>DD TO COMPOSITE LEVEL OR GO TO <D>DATA INPUT MENU?

DATA INPUT MENU

1. ROADWAY/SEGMENT : Avenue J-4 - 27th St East to 30th St East -01-2005
 2. NOTES : Year 2006 with Project 09:58:00

ROADWAY INPUTS:

3. REFERENCE NOISE EMISSION... CALUENO
 4. AVERAGE DAILY TRAFFIC... 985
 MED. TRUCKS HUV. TRUCKS AUTOS
 5. PK. HR. % 9.00 9.00 9.00
 6. ADI % 1.00 0.50 98.50
 7. SPEED 25.00 25.00 25.00
 8. TRAF. DISTRIBUTION CLASS... URB/SUB
 9. ACTIVE HALF WIDTH... 6
 10. % ROAD GRADIENT... 0
 11. ATMOSPHERIC ABSORPTION... Y<STAMINA>
 12. GROUND EFFECT (alpha)... 0.50 SOFT
 13. ANGLE OF VIEW... 180 DEG
 14. SHIELDING/CALIBRATION (AB)... 0
 15. CL. ROAD TO RECEPTOR DISTANCE... 50
 16. COMPOSITE CNEL < 0 > = 0.00

BARRIER OPTION:

18. BARRIER TYPE... NONE
 19. ROAD ELEV... 0
 20. RECEPTOR BASE ELEV... 0
 21. BARRIER BASE ELEV... 0
 22. RECEPTOR HEIGHT... 5
 23. BARRIER HEIGHT... 0
 24. BARRIER TO RECEPTOR DIST... 0

PROGRAM ACTIONS:

FUNCTION KEYS

F1 FOR HELP AT ANY TIME
 F2 TO QUIT AT ANY TIME
 F3 RE-START FHWA PROGRAM
 F4 CONTOUR DISTANCE CALCULATIONS
 F5 SPECIFIED DISTANCE CALCULATIONS
 F6 AFTER SELECTION FOR DATA LOOP
 F10 FOR MORE SELECTIONS

SELECT A NUMBER TO CHANGE DATA OR PROCEED IN PROGRAM :

*** UNATTENUATED NOISE LEVELS, dB ***

DESCRIPTOR	AUTOS	MED. TRUCKS	HUV. TRUCKS	COMPOSITE
PK. HR. LEQ	49.66	41.38	46.02	51.65
LEQDAY	48.23	40.33	45.06	50.39
LEQNITE	40.40	32.44	39.28	42.57
CNEL	49.63	41.12	45.76	51.54
LDN	49.02	40.89	45.63	51.10
VIEW-ANGLE<CNEL>	-1.18	-1.18	-1.18	-1.18
ATMOSPHERIC<CNEL>	-0.09	-0.09	-0.09	-0.09
BARRIER	0.00	0.00	0.00	0.00 <CNEL>

*** ATTENUATED NOISE LEVELS, dB ***

PK. HR. LEQ	48.40	40.11	44.76	50.39
LEQ<12>DAY	46.96	39.06	43.79	49.12
LEQNITE	39.14	31.17	36.01	41.30
CNEL	48.37	39.86	44.49	50.27
LDN	47.76	39.63	44.37	49.83

<A>DD TO COMPOSITE LEVEL OR GO TO <D>ATA INPUT MENU? █

Appendix E

Biological Assessment

12 August 2004

**Proposed Columbia School Site
J-4 & 26th Street E, Lancaster, Los Angeles County, California
Biological Impacts Assessment**

Introduction

The Lancaster School District proposes to construct Columbia Elementary School on an undeveloped 12.5 acre parcel situated between the alignments of Avenues J-4 and J-6 on the north and south, and 26th and 27th Streets East, but part of a larger area of open space approximately bordered by J-8 to the south and 22nd Street alignment on the west. New residential construction is underway east of 27th Street, north of J-4. All of the adjacent open space property has been cleared and leveled, probably for agriculture, but has been unused except by ORVs and motorcycles, or trash dumping, for a decade or more (see site photos). The site possesses only thin remnants of its former natural habitat values, except for an emergent line of wetlands herbaceous vegetation along the roadside where runoff from 25th Street drainage enters the open space lot.

Methodologies

Prior to commencing field work, pertinent biological literature and the California Department of Fish and Game (CDFG), Natural Diversity Data Base (NDDDB) were consulted to determine potential agency-listed sensitive resources occurring within the Lancaster - Palmdale area. The most recent published lists of the CDFG and U.S. Fish and Wildlife Service (USFWS, the "Service") sensitive taxa were reviewed, along with species lists and specimen records for Los Angeles County High Desert Natural Areas and Wildlife Sanctuaries and from the Los Angeles County Natural History Museum (Department of Mammalogy).

FH&A biologists conducted a focused field survey of the site on 15 May, 2004, to determine existing vegetation formations, habitat values, wildlife use, and the potential for sensitive resource occurrence. A subsequent site visit was conducted in August, 2004, consisting of a follow-up inspection of all potential burrowing owl nest sites. Field survey methods consisted of two experienced biologists walking transects approximately 10 meters apart across the entire property, as well as transects of opportunity where resources were specifically targeted, and also within a peripheral zone extending west into contiguous open space areas.

The May survey noted general biological elements present, as well as potential or actual support values for sensitive taxa. Site habitats were characterized, and dominant or

important plant species identified, and the relative biotic integrity, physical and ecological condition of the ecosystem was assessed. Additionally, the walked transects followed standard protocols for determination of presence / absence of California desert tortoise (*Gopherus agassizii*) and western burrowing owl (*Athene cunicularia hypugea*). The August survey consisted of a focused inspection of ground squirrel burrows and observations on late season vegetation changes. The combined timing of the two full-site surveys was optimal for making biological observations in natural habitats within this general portion of the Antelope Valley, and for discovery of nesting birds, tortoise activity, and sensitive resources in general.

Vegetation community terminology corresponds to the latest listings by the CDFG, NDDDB for terrestrial natural communities (1999), with plant determinations based upon Hickman, ed. (1993), and Baldwin, et al (2002). Animal species names correspond to the latest taxonomic treatments as appropriate. In the following narrative, a species' common and scientific names are given at its initial mention, and thereafter only the common name will be used. Subspecific scientific names are given where this level of identification was readily discernible or is relevant to determination of sensitive status. Standard scientific abbreviations used to indicate a species or group of species not identified below the generic level are as follows: "sp." = species, singular, only one; "spp." = species, plural, two or more different species undetermined. Different spellings of Mojave/Mohave correspond to existing differences in technical literature. Pertinent references are listed following the report text.

Digital images of the site, taken in August, 2004, accompany this report.

Report of Survey - General Discussion

The physical properties of the proposed school site are entirely altered, due to past grading and/or agricultural activities which completely leveled the land surface, removed all natural vegetation, and compacted the soils. The only contours apparent on the site are unnatural, formed by remnant grading or clearing lines, low berms which cross the site, probably over buried water lines; and piles of dumped earth, some shaped into bicycle ramps. The site has received considerable vehicle use, some of which is concentrated in a circular moto-cross, resulting in deeply etched erosional rings. Dirt roadways criss-cross the entire site, and the intersections of these are broadly denuded.

Runoff from residential areas south of Avenue J-8 flows along the alignment of 25th Street and into a low swale that follow the margin of the road alignment where it enters the overall lot (outside of the proposed project area of direct effects), providing aseasonal wetting that supports a linear patch of native marsh vegetation.

No native plants were found on the site, and the entire proposed project area supports only three or four exotic plant species, thinly-to-densely arrayed across the disturbed substrates. Past agricultural and other land uses may have resulted in increased soil salinity, which combined with the compaction and repeated substrate alterations caused by vehicles, typically would retard the growth of native plant species and generally favor disturbance-tolerant ruderal taxa.

The adjacent parcels of undeveloped land surrounding the proposed school site also have been heavily disturbed, although vehicle activity appears to be less frequent than on the project site. The perimeter of the overall property in which the school site is situated has been developed with rural residential tracts, except for the northern boundary, which is open to Avenue J. Property to the NE of the site, east of 27th Street, between J Street and J-4 was being graded and built-upon at the time of the August, 2004 survey. No areas of native Joshua tree or desert scrub habitats or vegetation formations occur within sight of the proposed school project property.

Site characteristics

Topography

The entire project site was leveled and cleared, probably for agriculture, at some time in the past, but was abandoned at least a decade ago, and subsequently has been unused except for unauthorized vehicle traffic and trash dumping. There is no natural topography, rock outcroppings, washes, sand sheets or other surface features within the project boundaries. The slightly elevated parallel berms of soil which traverse a portion of the property are densely overgrown with herbaceous ruderal taxa, and appear to demarcate a buried water line or other similar utility, providing less than one foot of substrate elevation change. A ditch crosses the adjacent lot NE of the site, originating off the corner of J-4 and 27th St. E, and this had water or wet mud in both May and August, 2004, suggesting that it receives urban runoff, or pipeline leakage.

Vegetation formations

The project site at one time may have supported Joshua trees and natural desert scrub habitat, similar to that observed on less-disturbed open space lots in this portion of the valley, but past uses of the site left it level and stripped of all native habitat. At present there are no native plants on the proposed school site parcel, nor natural habitat formations of any value to native wildlife, other than what might be provided by the thin layer of non-native herbaceous groundcover. There are no trees of any kind on the site, and the only "shrubs" are the noxious Russian thistle (*Salsola tragus*, "tumbleweed"), which forms dense stands where vehicle use is less intense.

Herbaceous annual groundcover species present included only non-native grasses (*Bromus madritensis rubens* and possibly others; *Avena* sp.), Russian thistle, short-pod filaree (*Erodium cicutarium*), and tumble-mustard (*Sisymbrium* sp.). Based upon late season growth exhibited in adjacent lots, a few other ruderal species would be expected to appear on the site, including wire lettuce (*Lactuca serriola*) and cheeseweed (*Malva parviflora*). No disturbance-tolerant native plants, such as rabbitbrush (*Chrysothamnus nauseosus*) were found, suggesting that substrates are not suitable for any species except the most resilient non-native generalist taxa. Cover values were largely formed by homogeneous stands of Russian thistle and bromes, with the few other species occurring in small patches. Most of the site vegetation withered by late Spring and Summer, except over the berms, where some additional moisture may be retained.

No annual wildflowers were observed in either of the surveys, nor was any evidence of wildflowers on the site between the survey dates. Past uses of the site have resulted in completely degraded substrates, complete leveling of the original natural topography, hard compaction of much of the site, and possibly elevated soil salinity, all of which contribute to the lack native plants or natural vegetation formations on the site.

Wildlife and habitat values

The parcel being considered for this project and its surrounding open space lots have, as described earlier, only completely disturbed, ruderal, non-native sub-shrub formations. Former agricultural or other similar land use sites tend to accumulate high densities of exotic, ruderal plant species, largely because such taxa are tolerant of poor or saline soils, can persist with limited surface moisture, and tolerate crowding and other conditions unfavorable to native species. Also, non-native plants may have defensive chemistries or structural features unlike those of native species, rendering them less-suitable to native wildlife as forage or shelter. In the absence of competition or herbivory, they may invade and spread through disturbed sites faster than native taxa, and once established may create a low-diversity or mono-specific formation which persists and self-propagates without any of the normal successional replacement stages. As such, the present condition of this site would be considered very low in biological value, because it lacks native plant species and has been invaded by noxious ruderals, provides no natural habitat structure or complexity, and lacks persistent seasonal surface water. Compared to even moderately disturbed scrub vegetation elsewhere this portion of the Antelope Valley, this property is of extremely limited biological value to native wildlife.

Patterns of human activity observed on the site include heavy use by vehicles, considerable trash dumping, and the persistent presence of humans, cats and dogs associated with the adjacent residential areas. Together the effects of these intrusions preclude site use by all but the most disturbance-tolerant wildlife.

The only terrestrial predator expected to occur on the site would be coyote (*Canis latrans*), which typically ranges into urban landscapes, foraging opportunistically upon small pets, rodents, insects, and some plant species. It would be expected anywhere in the Antelope Valley, including residential areas with open space lots of sufficient size to provide cover, or contiguity to adjacent natural areas. Desert cottontail (*Sylvilagus audubonii*), California ground squirrel (*Spermophilus beecheyi*) and Botta pocket gopher (*Thomomys bottae*) have persisted within the overall open space in which the parcel is situated, and were observed or detected from sign (tracks, burrows, fur, bones, etc.). No other native mammals were noted on the site.

The only open, active burrows observed were those of Botta pocket gopher, all others appearing abandoned, and containing well-established western black widow spider webs (*Latrodectus hesperus*), indicating no recent use by squirrels or other larger vertebrates. Unlike many spiders that construct and remove webs daily, black widows may occupy the same web for months or years, so their presence in the mouth of a rodent burrow generally indicates a lack of recent use. The property contains no suitable habitat values for Mohave ground squirrel (*Spermophilus mohavensis*), nor are there suitable

habitat values on adjacent lots. There is little likelihood that this species has persisted anywhere within the site vicinity, and wandering individuals (if such were to occur) would not find even temporary foraging or sheltering values on the project site.

Songbirds seen within the general vicinity of the property were mostly related to the surrounding urban fringe, and included house finch (*Carpodacus mexicanus*), mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), Brewer's blackbird (*Euphagus cyanocephalus*), western kingbird (*Tyrannus verticalis*), common raven (*Corvus corax*), and the non-native European house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), and rock pigeon (*Columba livia*). The only species which might nest within the property boundaries would be desert horned lark (*Eremophila alpestris ammophila*), which nests on the ground in grassland, scrub and ruderal sites, and was observed in May, 2004. The other species nest within landscaping or on buildings in the surrounding residential areas.

No predatory birds were seen during either of the site surveys, but it would be reasonable to assume that red-tailed hawk (*Buteo jamaicensis*) probably forages over the site from nearby rural residential landscapes. This species has habituated to human presence and often persists within urban settings with suitable tree cover, foraging for rodents and other small vertebrates in vacant lots and other open space.

A careful search was made to determine whether or not the site supports western burrowing owl (*Athene cunicularia hypugea*), and all burrows on the property were investigated. No evidence (active burrows, pellets, feathers) of this small owl was found on the site, and the near-complete lack of prey species on the property, combined with levels of disturbance from adjacent residential areas, render the site unsuitable for burrowing owl resident use. All potential perches on the site were checked for whitewash and owl pellets in May and August, and no evidence was found.

Only one species of reptile, the side-blotched lizard (*Uta stansburiana*), was observed within the project site boundaries, and the lack of natural habitat values and prey species in such degraded sites severely reduces lizard and snake diversity and numbers, relative to the faunas of healthy desert scrub formations. No evidence or individuals of Great Basin whiptail (*Aspidoscelis t. tigris*) or desert horned lizard (*Phrynosoma platyrhinos calidiarum*) were observed on the site or on surrounding properties, although a few nests were found of black harvester ants (*Pogonomyrmex?*). These ants are the primary food resource for horned lizards, but are not an "indicator" for their predators because they often occur in highly disturbed settings which are unsuitable for horned lizard use. No agency-listed sensitive lizard species would be expected to occur on or adjacent to the property.

No snakes were seen on the site, and it is doubtful that any but the most abundant, human-tolerant species would occur, or be able to survive, in such a setting. Common desert snake species occurring in desert scrub in this portion of the Antelope Valley include long-nosed snake (*Rhinocheilus l. lecontei*), gopher snake (*Pituophis catenifer annectans*), Mojave glossy snake (*Arizona elegans candida*), coachwhip (*Masticophis piceus flagellum*), Mojave shovel-nosed snake (*Chionactis o. occipitalis*), spotted leaf-

nosed snake (*Phyllorhynchus decurtatus*), and Mojave rattlesnake (*Crotalus scutellatus*). None of these are considered sensitive species by resource agencies, and no agency-listed sensitive snakes would be expected to occur on or adjacent to the property.

Surveys to U.S. Fish & Wildlife Service protocols were performed on 15 May, 2004, for California desert tortoise (*Gopherus agassizii*), and no tortoise evidence (burrows, tracks, fecal pellets, scrapes, scutes, etc.) was observed on the site, or within adjacent open space lots. Site conditions are entirely unsuitable for desert tortoise residence, and tortoises would not occur naturally in such a disturbed setting.

The nearest surface water to the property is urban runoff in a ditch along the margin of 27th Street E north of J-4, and along the margin of the dirt alignment of 25th Street E where it meets the open space lot along J-8. No amphibian species were observed in these sites in May or August, 2004, but western toad (*Bufo boreas halophilus*), a common generalist species, occurs in developed portions of the high desert where irrigation or urban runoff provide breeding sites. Pacific chorus frog (*Pseudacris regilla*) also often occurs within desert runoff channels, usually in the same sorts of areas as the western toad. The runoff sites mentioned are not within the project site as defined for the surveys, and neither species is considered sensitive by any resource agency.

Arthropod diversity on the property was very low, commensurate with the lack of native plant species. Western black widow spiders were present in rodent burrows and beneath trash and debris, and several black harvester ants colonies were found around the margins of the vehicle use areas. Only a few darkling beetles (*Tenebrionidae*, *Eleodes* sp.) and pale band-winged grasshoppers (*Trimerotropis pallidipennis*)-- both usually common to abundant in ruderal desert sites-- were observed, but little house flies (*Fannia canicularis*) quickly swarmed to human activity and shade. No native butterflies were seen on the site, but a single European cabbage butterfly (*Pontia rapae*), the larva of which feeds on a variety of ruderal herbaceous taxa, was observed in May, 2004.

Characteristics of the surrounding area

The proposed school site is surrounded by additional open space lots to the north and west, all of which have been similarly disturbed, although not necessarily to the same extent. The remaining boundaries, and the boundaries of the extended overall open space are entirely existing residential. Although some of the nearby residential and light commercial areas are dispersed, the entire project site would be considered in-fill, as it is entirely surrounded by existing development.

Vegetation within the ditches near the site consists of a mixture of native and non-native wetland and wet riparian elements, dominated by mulefat (*Baccharis salicifolia*), cattail (*Typha domingensis*), sweet-clover (*Melilotus albus*), horseweed (*Conyza* sp.), and rabbitsfoot grass (*Polypogon monspeliensis*). Habitat values formed by urban runoff support a number of native bird species, including red-winged blackbird (*Agelaius phoeniceus*), song sparrow (*Melospiza melodia*) and killdeer (*Charadrius vociferus*).

The nearest public open space is Tierra Bonita Park, at the intersection of 30th Street E and Lancaster Boulevard. There are no wildlife sanctuaries, natural areas parks or other similar public open space entities within a two mile perimeter of the site.

Sensitive resources - general definitions - regulatory background

Sensitive species are classified in a variety of ways, both formally (e.g. State or Federal Threatened and Endangered Species) and informally (e.g. California Department of Fish & Game [CDFG] "Special" species [note: abbreviations given following the original citation of an agency or program are then used in the remainder of the report text]). Species may be formally listed and protected as Threatened or Endangered by either the CDFG or U.S. Fish and Wildlife Service [USFWS, "the Service"] (Federal status abbreviations: FT, FE; State: ST, SE). A few species are listed as California Fully Protected (CFP). Sensitive species and vegetation formations as recognized by the state are recorded within the California Natural Diversity Data Base (CNDDB).

Species formerly considered "Federal Species of Concern", a term-of-art never formally defined by the Service, and a variety of other similar unofficially designated taxa are considered "Special Animals" by the CDFG, and usually are given full project impact consideration within CEQA documents. These are listed below as "CEQA" species based upon the January 2004 updated list (full explanation of the codes and status of all California sensitive species, may be obtained via the Internet at: <http://www.dfg.ca.gov/>). Plants discussed are from the January, 2004 CDFG "Special Plants List." Taxa listed as being of special concern by the California Native Plant Society do not necessarily indicate that such species have been accorded any particular ranking within governmental resource agency listings, but CNPS species of concern generally are given full impacts consideration within CEQA documentation. Community types and assignment of sensitivity follows CDFG, 1999, Natural Heritage Division, *List of California terrestrial natural communities recognized by the Natural Diversity Data Base*. An explanation of status abbreviations follows the list.

Informal lists also are maintained by various agencies and advocate groups, including: USFWS birds of conservation concern (BCC); California Department of Forestry Sensitive Species (CDF), for taxa warranting special consideration during timber operations; USFS (FSS) and Bureau of Land Management (BLM) also maintain lists of sensitive species, often kept for individual forests or districts. Additionally, the Service, CDFG, and other governmental agencies may recognize or utilize lists developed by special interest groups, if properly reviewed and published (i.e. Audubon Society for birds [Aud]); California Native Plant Society (CNPS), Rare and Endangered Plants"; United States Bird Conservation Watch List (WL); Western Bat working group (WBWG)). Sensitive species lists also may be promulgated by local entities (such as individual parks or open space management organizations) for areas within their particular jurisdiction; unless these lists have been properly and publicly reviewed, they may not be appropriate for use in determining land use sensitivity within the context of CEQA.

Terrestrial vegetation in California has been accorded sensitivity rankings within a synthesis (CDFG, 1999, *List of California terrestrial natural communities recognized by*

the Natural Diversity Data Base) of the floristic association concepts of Sawyer and Keeler-Wolf (1995), combined with older community classification from Holland (1986, 1992). Community ecology often is more technically complicated than is useful for CEQA analysis, and while CDFG concepts and terminology should be utilized as appropriate, habitat discussions also may employ simple descriptive narratives.

Impacts to wetland and riparian habitat types are regulated by Section 400 statutes of the Clean Water Act and Section 1600 statutes of the California Fish and Game Code, as administered by the U.S. Army Corps of Engineers (ACOE) and CDFG, and projects in such areas also may be subject to review by the California water quality control board. Recent determinations by the U.S. Supreme Court ("SWANCC ruling, January, 2001) limited ACOE jurisdiction to navigable waters of the U.S. and wetlands or tributaries associated therewith, but full assessment SWANCC ruling will be refined in to some degree by future project-related actions. At present, inland waters or pocket wetlands with no outlet to navigable waters of the U.S. may no longer be subject to ACOE permitting under Section 404 of the Clean Water Act. The state, however, may take jurisdiction over bed and bank of any natural watercourse or area of habitat formed by runoff or other sources, and CDFG must be consulted prior to filling, dredging or otherwise altering or destroying wetland and riparian formations.

One of the more important (in terms of project effects) Federal statutes protecting native wildlife is the Migratory Bird Treaty Act (MBTA), prohibiting exploitation of native birds for commercial purposes, and enacted and enforced cooperatively with other countries. This act does not by itself accord specific sensitive status to any particular species, but its direct applicability to private project impacts is worthy of discussion. The basic intent of the MBTA is to protect nesting birds of all native species from disturbance or harm, and it has been applied to many otherwise lawful actions (facility maintenance, gardening, fuel management) which inadvertently or incidentally affect nests of native species. Actions which require clearing or cutting of potential nesting areas should be timed to be performed outside of the breeding season (for most local species, mid-March through mid August or early September). Where such temporal avoidance of disturbance is not feasible, the resource agencies will require that all potential nesting areas be surveyed, nests flagged and protected from direct harm until no longer in use, and construction or other activities kept at an appropriate distance.

Sensitive elements potentially occurring on the project site or in its vicinity

The following discussions include all agency-designated sensitive floral and faunal elements which are known, or might reasonably be expected, to occur within the general vicinity of the Columbia School project site. Some of these are included because they are known to occur within the same bioregion or general vicinity of the project site, and within habitat types similar to those once found on the property. Because some species are cryptic in their habitats and others may occur only seasonally or transitorily, time-limited or generalized field surveys may not suffice to discover them, even when relatively abundant. CEQA requires a reasonable analysis of potential project impacts to such taxa, whether or not they can be easily demonstrated to be present on any given site, and such discussions are provided below.

The absence of native plants, homogeneous early successional ruderal habitat formations, and lack of surface hydrology on the site greatly reduce the likelihood of occurrence by agency-listed sensitive species, even on a transitory basis. The following discussions recognize this fact, but give consideration to all species potentially utilizing the property. See earlier discussions for explanations of regulatory status abbreviations.

Invertebrates

- **San Emigdio blue butterfly (*Plebulina emigdionis*) CSC** - Larvae of this small butterfly feed upon four-wing saltbush, an abundant and widespread plant throughout the Antelope Valley, often forming dense stands along roadsides, in disturbed scrub habitats, and in seasonal washes. Despite the abundance of its host plant, this butterfly has a limited and fragmented distribution, and is thought to have been extirpated throughout most of the western portions of its range (Mattoni, 1990). One explanation for its being rare on a common host may be that the larvae are supported only within a symbiotic relationship with ants (*Pheidole* spp.), and so the species does not occur in areas lacking the proper matrix of soils, ants and plants. Historic localities in the greater Antelope Valley region include Acton, areas around Victorville and the Mojave River basin (Los Angeles County Natural History Museum specimen records), and unspecified "colonies in and around the western Mojave Desert (Ballmer and Pratt, 1988). Adults are active in early Summer and again in early Fall, and sit on the foliage of the host unless disturbed.

Four-wing saltbush does not occur within the project site boundary, nor on adjacent open space lots, so there would be no impact to this species.

- **monarch butterfly (*Danaus plexippus*) CSC (winter roosts)** - This butterfly roosts in vast numbers during Winter in tall trees (eucalyptus, pine, oak, sycamore) along the southern California coastline and in the lower Mojave River drainage. The CNDDB records such roosts and it is the intent of the CDFG to protect them, even though the butterfly is not protected away from these roosts. The larval host is milkweed (*Asclepias* spp.), which does not occur on or near the property. No monarch Winter roosts occur anywhere near the site, and the occasional transient occurrence of this butterfly, common throughout the Antelope Valley, is biologically independent of site resources.
- **Mojave blister beetle (*Lytta insperata*) CSC** - The life history, distribution and seasonal occurrence of this species are not known, and there are no actual specimen records in the California Dept. of Agriculture collection (F.G. Andrews, pers. comm., 1996). The species was described in 1874, from a single specimen labeled "Mojave Desert," hence the common name; the other known specimens in collections are labeled as being from San Diego and Ventura Counties.

Beetles in the genus *Lytta* are parasitic in the larval stages on native anthophorid bee colonies (Fam. Anthophoridae), and both these bees and their associated beetles may undergo population expansions during "wet year" rainfall cycles, and contractions during droughts. It is probable that the both bees and blister beetles have

the ability to diapause or aestivate (= go into a prolonged period of drought-induced dormancy) during years in which conditions are not optimal, thereby appearing to vanish for years at a time, and then suddenly reappearing when conditions improve. Given the lack of specific data concerning this species, it is impossible to predict where or if it in fact occurs in the Antelope Valley, and if so, whether or not it would be found anywhere near the project site. The likelihood of its local occurrence is greatly lowered by the degraded condition of the property, and the proposed project would generate no impact to this species.

Amphibians

- **arroyo toad (*Bufo californicus*)** FE - Arroyo toad occurs on the Mojave River, near Victorville, and in Littlerock Creek drainage above Littlerock Dam. Their basic habitat and breeding season requirements are relatively specific, and include persistent low-flow streams with flooding-protected marginal willow – cottonwood terrace habitats, shaded banks, and (usually) upland areas of coastal sage or chaparral scrub. No such habitat values occur anywhere within the site vicinity, and arroyo toad would not occur be affected by the proposed project actions.

Reptiles

- **California desert tortoise (*Gopherus agassizii*)** FT, ST – Agency-designated critical habitat for California desert tortoise is confined to the northeastern portion of Los Angeles County, primarily north and east of Rosamond. USFWS protocol surveys conducted in May, 2004, found no evidence of desert tortoises (burrows, scrapes, courtship circles, tracks, scat, scutes or shells) on the project site, and it is highly unlikely that any individuals reside naturally anywhere within the site vicinity. Escaped pets are commonly encountered in the Antelope Valley, and their potential presence cannot be anticipated in CEQA documents. The project would generate no impacts to known naturally-occurring native populations or designated critical habitat of desert tortoise.
- **San Diego horned lizard (*Phrynosoma coronatum blainvillii*)** CSC, FSS; **rosy boa (*Charina trivirgata*, all subspecies)** CSC, BLM - Both of these species are most commonly associated with scrub and chaparral habitats, but either may range down into rocky desert scrub along foothills and brushy arroyos. The project site contains no suitable habitat values for either species, and neither would be affected in any way by project implementation.
- **chuckwalla (*Sauromalus ater*)** CSC; **Mojave fringe-toed lizard (*Uma scoparia*)** CSC, BLM - These two lizards are found within specific habitat types, the former usually being found on rocky outcrops in open desert (such as Saddleback Butte, and the rocky areas around the community of Lake Los Angeles), and the fringe-toed lizard on fine, aeolian or ancient lakeshore sand deposits. Neither of these habitat types occurs within or near the site vicinity, and neither lizard species would be affected in any way by the proposed project.

Birds

- Swainson's hawk (*Buteo swainsoni*) ST, BCC, WL, FSS, Aud; ferruginous hawk (*Buteo regalis*) CSC (wintering), Aud, BCC, BLM; white-tailed kite (*Elanus leucurus*) CFP, BCC (nesting); northern harrier (*Circus cyaneus*) CSC (nesting); prairie falcon (*Falco mexicanus*) CSC (breeding sites), BCC – All of these sensitive birds of prey would be expected to forage widely over the open desert and agricultural areas in the Antelope Valley, but the degraded nature and in-fill setting of the subject property is such that there would be little to induce them to forage thereon. Loss of the property as ruderal open space would not jeopardize the continued use of natural habitats within this portion of the valley by these birds, nor would it affect their populations or resident/migrant status regionally.
- western burrowing owl (*Athene cunicularia hypugea*) CSC (burrow sites), BCC, BLM; loggerhead shrike (*Lanius l. ludovicianus*) CSC, BCC - Both of these small predators nest in suitable ecological situations throughout the Antelope Valley, the owl utilizing rodent burrows in slopes or along ditch-banks or road margins, and the shrike constructing its nests in low, thorny desert shrubs. Focused surveys of the entire site in 2004 did not reveal evidence of burrowing owl use (tracks, fecal splashing, pellets, feathers, etc.) in or around any of the rodent burrows on the site, nor on adjacent parcels. It is doubtful that burrowing owls would be attracted to the site to forage during local or seasonal movement, as the property lacks feeding resources, is heavily disturbed, and is proximate to active residential areas. Dogs and cats were observed on the site during field surveys, and their presence (along with that of people and off-road cycles) would further discourage burrowing owl use of the site.

No shrikes were seen on the site in either survey, and there is no native shrub cover present. Loss of minor in-fill acreage of unoccupied, and largely unsuitable habitat for either of these species would be an incremental, biologically unimportant local project effect, and would not jeopardize their continued presence within this portion of the valley, nor reduce regional metapopulational vigor for either species.

LeConte's thrasher (*Toxostoma lecontei*) CSC, BCC, WL, Aud, BLM; Bendire's thrasher (*Toxostoma bendirei*), CSC, BCC, WL, Aud, BLM; California thrasher (*Toxostoma redivivum*) CSC, WL, Aud; lark sparrow (*Chondestes grammacus*) (nesting) - The secretive LeConte's thrasher occurs sparsely within less-disturbed open scrub habitats (including creosote and Joshua tree formations and saltbush-dominated alkali flats) throughout the southern Mojave Desert, and has been recorded from a variety of high desert scrub habitat localities. The lack of habitat values and level of disturbance on and around the site completely precludes this species occurring within the proposed project site vicinity. Neither of the other two thrasher species occurs locally, or would find suitable habitat within or adjacent to the project site.

Lark sparrows are widely distributed in xeric scrub formations, and commonly nest in low shrubs or on the ground, often persisting within ruderal habitats. None were seen on the site during the two field surveys, despite being observed commonly feeding fledglings within the same seasonal timing on other, less disturbed parcels elsewhere in the valley. This species presently does not reside or breed on the site.

Mammals

- **pallid bat (*Antrozous pallidus*)** CSC, FSS, BLM, WBWG - This species might occur sporadically over natural desert scrub locally during general foraging movement, but it is unlikely to find suitable prey species values on the project site. Pallid bats forage for terrestrial arthropods on the ground, and prefer open desert substrates; the highly altered substrate and extremely low number of terrestrial arthropod observed on the site practically negate its foraging habitat value for this species. The loss of a small amount of very low-quality ruderal habitat would not jeopardize this widespread bat species locally, nor constitute a significant incremental habitat loss impact to the species populationally or regionally.
- **Mohave ground squirrel (*Spermophilus mohavensis*)** CSC, ST - As noted earlier in this report, this species historically occurred throughout the Lancaster - Palmdale area, but recent mapping of the species' range (Gustafson, 1993) deleted all lands lying west of Palmdale and Lancaster and within the city limits, continuing to include land east of current development. Protocols for definitive Mojave ground squirrel status evaluation for proposed development can require intensive trapping efforts, but for a highly disturbed site such as this, a habitat evaluation may suffice.

The proposed Columbia school property contains virtually no suitable habitat for Mohave ground squirrel because prior levels of substrate disturbance were intense and extensive, entirely removing native scrub, groundcover forbs and grasses. The present substrate condition is essentially sterile biotically, at least for native species, being heavily compacted and largely cleared by continuing vehicle use. A small number of invasive, non-native herbaceous species, primarily Russian thistle, form 100% of the thin, annual vegetative cover. Surrounding parcels also contain little or no potential MGS habitat, and there is no likelihood of MGS natural occurrence or persistence thereon.

- **Panamint kangaroo rat (*Dipodomys p. panamintinus*)** CSC - The nominate subspecies of this otherwise widespread species is confined to a small area around the Panamint Mountain range, and does not occur anywhere within the project zone. The non-listed subspecies *D. panamintinus mohavensis* is commonly found on suitable substrates throughout the Antelope Valley, but no evidence of any sort of kangaroo rat activity was observed on the site.
- **southern grasshopper mouse (*Onychomys torridus ramona*)** CSC - Grasshopper mice are nomadic within large home ranges or foraging territories, and their occurrence in any given area is difficult to determine without focused trapping. They hunt in packs, like miniature wolves, chasing down other small rodents and insects as prey. Given the highly degraded and disturbed nature of the site, and the observed low densities and diversity of potential prey taxa, it is unlikely that grasshopper mice could persist or occur on the property.

- **American badger (*Taxidea taxus*) CSC** - Badgers require large foraging territories, and individuals often roam widely over broad expanses of land. The species once was fairly common throughout the Antelope Valley and surrounding low passes and hills, and persisted around agricultural areas with high density rodent populations. Land conversion, trapping, hunting and domestic animal diseases have greatly reduced the abundance and overall distribution of badgers in southern California, particularly in the past 30 years or so. There is no reasonable possibility that this species would reside or forage within a disturbed in-fill area such as the project site.

Wildlife movement and corridors

The property does not lie within any part of an identifiable wildlife movement pathway, corridor or habitat linkage. It lacks direct surface connections and alignment with whatever remnant larger areas of natural open space or historic movement zone might once have encompassed it. The overall parcels in the lot offer only degraded substrates, lacking native vegetation species or habitat formations, natural topography or food resources. The presence of aseasonal runoff in ditches on adjacent portions of the overall site provides limited, but attractive habitat values for common, mobile desert riparian bird species, some of which occasionally may forage in the open ruderal field, but would not reside outside of the riparian habitat. The retorted and ruderal nature of the existing site resources is insufficient to induce wildlife movement onto or through the property, and its isolation from other natural open space practically precludes all but the most mobile and human-tolerant species from wandering onto the site.

Summary

The proposed Columbia School development would not adversely affect local native wildlife habitat or resource values, unique vegetation formations or natural communities. There would be no loss of native plants and no significant disturbance to native wildlife resources. The only native bird species likely residing on the site during the breeding season is the desert horned lark, and direct impacts to this taxon may be avoided by timing clearing and construction activities to commence after 15 August and before 15 March. No agency-listed sensitive plant or animal species are known or expected to occur on the site in a resource dependent, resident, or seasonal breeding basis, and the property overall does not lie within any identifiable wildlife migration, movement or habitat linkage zone.

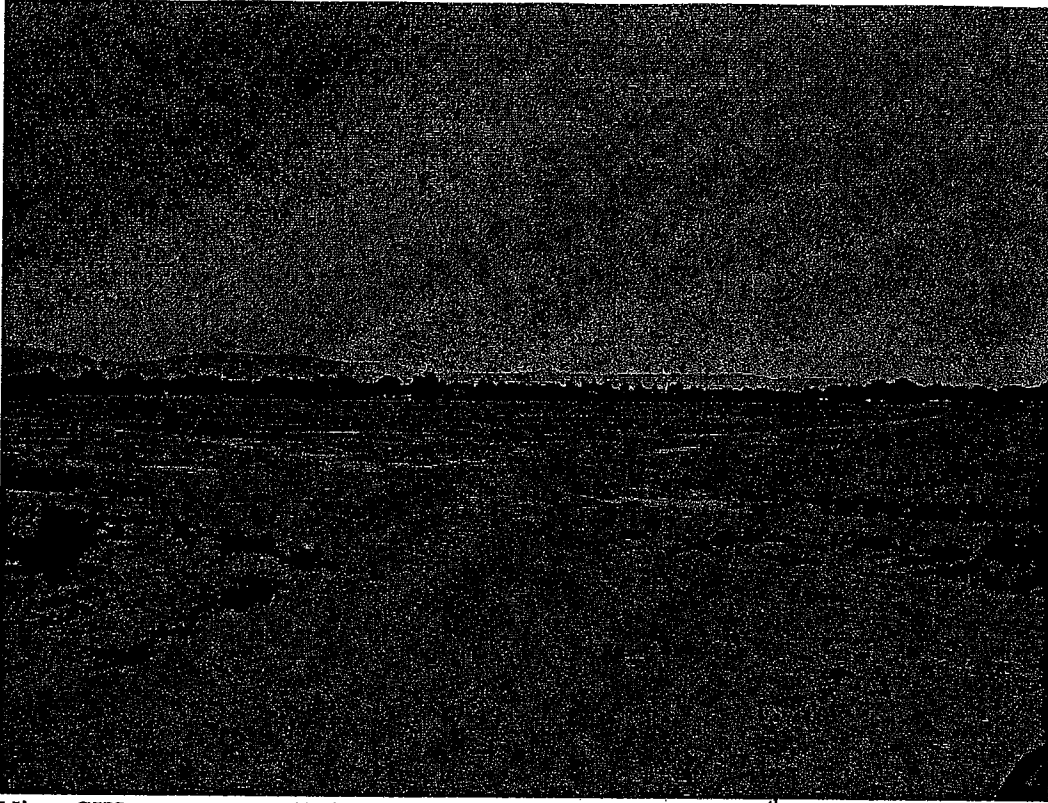
Digital images of the Columbia School project site



View east across site, toward active construction on off-site parcel



View from corner of J-4 and 26th St. E, SE across site toward existing residential areas



View SW across overall site, from near corner of J-4 and 26th St. E

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Mitigation Monitoring • Parks and Recreation Planning • Environmental Education

Appendix F

Cultural Resources

South Central Coastal Information Center
California Historical Resources Information System
California State University, Fullerton
Department of Anthropology
800 North State College Boulevard
Fullerton, CA 92834-6846
714.278.5395 / FAX 714.278.5542
anthro.fullerton.edu/sccic.html - sccic@fullerton.edu

Ventura
Los Angeles
Orange

November 4, 2004

SCCIC# 4813.2279

Ms. Irena Finkelstein
HDR Engineering, Inc.
251 S. Lake Ave, Suite 1000
Pasadena, CA 91101
(626) 584-1742

RE: Columbia Elementary School Site (Lancaster East Quadrangle)

Dear Ms. Finkelstein,

As per your request received on November 1, 2004, a records search was conducted for the above referenced project. This search includes a review of all recorded archaeological sites within a 1/2-mile radius of the project site as well as a review of cultural resource reports on file. In addition, the California Points of Historical Interest (PHI), the California Historical Landmarks (CHL), the California Register of Historic Places (CR), the National Register of Historic Places (NR), the California State Historic Resources Inventory (HRI), and the City of Los Angeles Historic-Cultural Monuments listings were reviewed for the referenced project site. The following is a discussion of the findings.

Due to the sensitive nature of cultural resources, archaeological site locations are not released.

Lancaster East, CA. USGS 7.5' Quadrangle

ARCHAEOLOGICAL RESOURCES:

No archaeological sites have been identified within a 1/2-mile radius of the project site. No sites are located within the project site. No sites are listed on the Archaeological Determination of Eligibility (DOE) list. This does not preclude the potential for archaeological sites to be identified during project activities. No isolates have been identified within a 1/2-mile radius of the project site.

HISTORIC RESOURCES:

No additional cultural resources have been identified within a 1/2-mile radius of the project site.

A review of the historic map - Lancaster (1958) 15' USGS - indicated that four structures and two unimproved roads were within the project site.

The California Point of Historical Interest (2004) of the Office of Historic Preservation, Department of Parks and Recreation, lists no properties within a 1/2-mile radius of the project site.

The California Historical Landmarks (2004) of the Office of Historic Preservation, Department of Parks and Recreation, lists no properties within a 1/2-mile radius of the project site.

The California Register of Historic Places (20004) lists no properties within a 1/2-mile radius of the project site.

The National Register of Historic Places lists no properties within a 1/2-mile radius of the project site.

The City of Los Angeles Historic-Cultural Monuments lists no properties within a 1/2-mile radius of the project site.

The California Historic Resources Inventory (2004) lists no properties that have been evaluated for historical significance within a 1/2-mile radius of the project site.

PREVIOUS CULTURAL RESOURCES INVESTIGATIONS:

Four studies (LA2345, LA6618, LA6620, and LA6621) have been conducted within a 1/2-mile radius of the project site. Of these, none are located within the project site. There is one additional investigation located on the Lancaster East 7.5' USGS Quadrangle that are potentially within a 1/2-mile radius of the project site. These reports are not mapped due to insufficient locational information.

RECOMMENDATIONS

Due to the lack of cultural resource studies for the project site and in order to avoid damaging any unidentified cultural resources, a Phase I Archaeological Survey by a professional archaeologist is recommended.

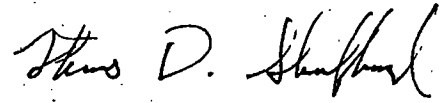
Furthermore, if any building(s) 45 years and older will be affected by the proposed project, it is recommended that the building(s) be assessed and evaluated for potential historical significance by a professional architectural-historian.

The professional archaeologist you retain may request the records search map, archaeological site records, and bibliography from the Information Center referencing the SCCIC number listed above for a fee (per the fee schedule).

If you have any questions regarding the results presented herein, please contact the office at 714.278.5395 Monday through Thursday 8:00 am to 3:30 pm.

Should you require any additional information for the above referenced project, reference the SCCIC number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Sincerely,
SCCIC

A handwritten signature in dark ink, appearing to read "Thomas D. Shackford". The signature is fluid and cursive, with the first name "Thomas" and last name "Shackford" clearly distinguishable.

Thomas D. Shackford
Staff Researcher

Enclosures:

(X) Invoice # 4813.2279